Rural Sociology

VOLUME 25 MARCH 1960 NUMBER 1

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Editors' Introduction

THIS issue of RURAL SOCIOLOGY, organized under the broad theme of "Education and Social Change in Latin America," is the first in a contemplated series featuring foreign areas. It is only proper that the first of these issues concerns Latin America, for this part of the world was the first major foreign area into which American rural sociologists ventured. The interest has not waned and more rural sociologists have worked in Latin America than in any other portion of the globe. In a recent questionnaire mailed to all members of the Rural Sociological Society, 36 persons, or 17 per cent of all responding, reported having worked in a professional capacity in one or more of the Latin-American countries. One member reported working in all Latin-American countries, another in all except Venezuela, still another in all except Brazil and Colombia. The following summarizes the number of members reporting professional experience in Latin-American countries in order of frequency: Brazil, 10; Mexico, 8; Peru and Chile, 6; Cuba, Puerto Rico, and Guatamala, 5; Bolivia and Costa Rica, 4; Venezuela and Ecuador, 3; Colombia and Panama, 2; Haiti, Argentina, Paraguay, and Jamaica, 1.

The theme "Education and Social Change" is an especially appropriate rubric under which problems of migration and urbanization, rural elementary and higher education, relationships to land, socio-economic development, and differential access to information, among others, may be placed. In the first paper of this issue, Carl Taylor tells the story of how and why five rural sociologists in the early 1940's studied rural life in Latin-American countries. While earlier work was done by rural sociologists, the studies reported by Taylor served to make foreign area work a legitimate activity for the profession. This paper is followed by two papers in which all or most of Latin America is surveyed in regard to agricultural education and aspects of the land problem. Rural elementary education, placed in a context of socio-economic development in Brazil, is the subject of the next paper. This is followed by reports on three field studies: an analysis of supervised credit in an Andean community, an examination of a colonization experiment in Bolivia, and a study of information exposure as it relates

to rural social structure in Brazil. The final paper in this group is devoted to cross-cultural methodology. The final and featured article in this issue is a case study in microdemography in which the United States–Mexican Border is viewed as an area of intial contact and interaction of two relatively distinct cultures.

We are grateful to Charles P. Loomis, of Michigan State University, who, through a grant from the Carnegie Corporation and support from Project W-108, Anglo-Latino Relations in Hospitals and Communities, made possible the publication of the supplement.

J. ALLAN BEEGLE *and* JULIAN SAMORA

CARL C. TAYLOR

Early Rural Sociological Research in Latin America

This paper tells the story of how and why five rural sociologists were invited to spend a year attached to an American embassy "to study the rural life" in five different Latin-American countries. This paper attempts to report what the sociologists planned to do, to what extent they were able to carry out their plans, and why they could not always do so. The value of such broad types of studies is appraised by the rural sociologists who participated in this enterprise, and their knowledge of the sociologically significant carry-overs resulting from their work is reported. The author conferred or corresponded with all who participated in the studies and feels confident that he has faithfully reflected or reported all of the ideas which space has permitted him to present. For the appraisal of limitations of the methods used and the special emphasis given by the different analysts, he accepts sole responsibility.*

The author is presently consultant for the Ford Foundation; formerly he was chief, Division of Farm Population and Rural Life, Bureau of Agricultural Economics, United States Department of Agriculture.

HOW and why rural sociologists, in the early 1940's, were requested to make studies in the Latin-American countries is worth relating for two reasons. First, it indicates that the Office of Foreign Agricultural Relations, which for many years had guided the reporting of agricultural attachés and in more recent years had supported some research in foreign agriculture, had come to recognize the desirability of studying the people and their institutions as well as their agriculture;

*The rural sociologists referred to in this paper include Olen Leonard, Lowry Nelson, T. Lynn Smith, Carl Taylor, and Nathan Whetten. The books reporting the results of their studies in Latin America are: Olen Leonard, *Bolivia: Land, People and Institutions* (Washington: Scarecrow Press, 1952); Lowry Nelson, *Rural Cuba* (Minneapolis: University of Minnesota Press, 1952); T. Lynn Smith, *Brazil: People and Institutions* (Baton Rouge: Louisiana State University Press, 1946); Carl C. Taylor, *Argentine Rural Life* (Baton Rouge: Louisiana State University Press, 1946); and Nathan Whetten, *Rural Mexico* (Chicago: University of Chicago Press, 1948).

and, second, research by persons attached to American embassies was a new endeavor.

The description of what was expected or hoped for from the studies and observations of these sociologists did not reveal any expectation that they would carry out detailed research projects such as they and other rural sociologists had been accustomed to doing. It simply revealed a belief that rural sociologists were more capable than any other social scientists of developing information and understanding which would be useful to the United States government in conducting its relations with other—in this case Latin-American—countries. But the rural sociologists were to be permitted to plan their own work.

The issues or problems discussed by those who accepted these assignments were: (1) How much will something even approaching research have to be compromised in order to fulfill the responsibility of rendering useful reports to the State Department and the Office of Foreign Agricultural Relations? (2) What can and cannot be done in such a short time on such a broad assignment that will have any of the validity of research? (3) Can and should all try to study the same generic social objects or universes? (4) Can a single design for sociological research be formulated for an over-all study of a number of entire countries, each varying in historical and cultural origins and in economic and political development, and, above all, with varying research materials available?

Although there was no attempt on the part of the rural sociologists to formulate a common research design, there was agreement that there were certain basic fields or areas which all probably should attempt to analyze. These were population, type-farming regions, man-land relations, basic social institutions, and local communities or locality groups. Since it was believed that each of the rural sociologists would be able to spend only a year in the country assigned, it was tacitly agreed that in such broad studies some sort of sampling techniques would have to be employed. But it was also recognized that sampling would probably have to be *ad hoc,* each analyst using those methods which published data and the possibility of field inspection permitted.

The United States embassies were apprised of the State Department's sponsorship of the research projects and informed that sufficient additional funds were being allotted to make it unnecessary for the embassies to use any of their regular funds to support the work. In spite of this, the receptions accorded these "nondiplomatic" rural sociologists did not in all cases reflect an understanding of, or sympathy for, the enterprise. In one country the ambassador said in essence, "I have been informed of your coming. I am sure you know much more about what you are supposed to do and want to do than I. What can I do to help you?" In another country the ambassador requested that the sociologist be present at all staff meetings and insofar as possible

function as a member of the embassy staff. In another country the ambassador told the sociologist that members of the embassy staff could probably answer all the questions which he would want to ask and requested, if not dictated, that in all his contacts with host-country officials he should be accompanied by an embassy officer.

The adverse attitudes reflected in two of the first three embassies in which the rural sociologists worked were probably more to be expected than was the favorable attitude reported above. After all, research had never been one of the functions of American embassies. Furthermore, these sociologists had fairly good salaries and had funds for travel and to employ assistants. Some members of the embassy staff, with diplomatic status but with considerably lower salaries and with little or no opportunity to travel in the country where they were posted, obviously resented these nondiplomatic interlopers. In all countries, however, the agricultural attaché helped to offset these disadvantages. And it can be said without undue pride that, before the rural sociologists had completed their work, other members of the embassy staff, as well as others who were contacted, far more then compensated for some of the initial frustrations.

When the rural sociologists entered the countries, their first search was for printed information: census materials, other statistical data, official reports, and treatises written by host-country or other social scientists. The second step was to learn about and become acquainted with host-country sociological scientists who were themselves concerned with professional objectives similar to those of the rural sociologists. The third step was personal field observation. To the rural sociologist this was the most important, but it was thought that it could not be done with any precision, or even logic, without the understanding which the other two sources could provide. Even so, field trips were undertaken almost immediately and under the guidance of agricultural attachés were as useful as they were necessary for planning future work.

Each of the five men, as soon as he began to get acquainted with the country he was to study, was overwhelmed with the task he had undertaken. Whether he found good census data and other ample sources of good information, or whether he found only fragments of good data, he became convinced that he would need a number of years or a lifetime to accomplish what he was tempted to do. The difficulties facing the sociologists were increased simply because they were sociologists. As such, they felt as responsible to other sociologists as they did to the State Department, which had invited them to undertake these studies. They not only wanted to add to their own professional knowledge, but wanted to make a contribution to sociology as such.

In some countries censuses and records of vital statistics were fairly good; in others they were very poor. In some countries there had been a great deal of well-documented historical research; in others, even

though authors had written about events which were of sociological significance, they had not documented their statements, and it was thus impossible to judge what were facts and what were products of literary imagination. In some countries there were a number of contemporary sociological scientists; in others there were very few, and these few had little opportunity to conduct empirical research. In some countries field work was not too difficult; in others it could be done only at great cost in time and under extreme difficulties. These differences, if not described, are reflected in the books written by the rural sociologists who made these studies. These books do not, however, account entirely for the differences in emphasis in the written product. Some of the differences reflect variations in the five sociologists' concepts of what should be attempted and in judgments about what could be done with the data available.

The amount of time, space, and detail given to population analysis is not so much a reflection of the existence or absence of good census or vital statistics data as it is a reflection of the professional interests of the various authors. The currency of data in Bolivia was as bad as could be, and the data for Argentina were not much better; yet Taylor and Leonard gave as much space or more to population analysis for these countries as did Nelson for Cuba, where the sources in this field were the best of all the countries studied. Smith gave many times more space to, and details of, population analysis than did either Nelson or Whetten, who had more ample and trustworthy data at their command.

Notwithstanding differences in degrees of emphasis, each of the five rural sociologists was convinced that, no matter how shaky or sparse the available data, he needed to learn all he could about the population of the country he was studying. Each analyzed population in terms of standard demographic categories: the growth and distribution of the population, its age and sex composition, birth and death rates, urban-rural distribution, population-size centers, and internal migration. Each of them found it necessary to add to these standard categories a report on the ethnic or nationality composition of the population, including the growth and distribution of population in terms of these factors.

The prescription for studying major type-farming areas as social universes was not implemented in all five studies, and the reasons for this illustrate somewhat the converse of the attempts at population analysis.The types of agriculture of each region of each country were reported, but they were not found to be as significant sociocultural universes in some countries as in others, or as significant as some other regional sociocultural universes. In Argentina, agricultural production is highly specialized according to geographic regions, and sufficient social data are available to make them suitable sociocultural universes for analysis. No matter what the origin of settlers in each region, practi-

cally all economic interests—and thus the routines and rhythms of daily, seasonal, and year-after-year behavior—are dictated by the type of agriculture practiced. This is also true in Cuba. In the other three countries the physical isolation of some areas, the still-prevailing practice of self-sufficient agriculture, and the differing ethnic composition of different sectors of the population are such that to force data in type-farming area classes would not only have been difficult, but would have disregarded the facts reported on more significant social universes.

From what has just been said, it is clear that type-farming areas could not be used in all countries for even the crudest sampling. They were used in Argentina by constructing a crude socioeconomic index or norm for each type-farming area and selecting the two *partidos* for each area which most nearly fitted the norm for the area. Interviewing, lasting from one to two weeks, was undertaken in each of these subareas. In Cuba, Nelson and his colleagues selected eleven subareas of four type-farming areas and made detailed schedule surveys in each. This was the only one of the five studies which approximately followed a sample method of analysis.

Man-land relations, a field which no longer receives much attention from American rural sociologists, was listed in advance as a major area for analysis. Ownership and tenure of land are major public and personal issues in all of the countries studied. This issue was the crux of a revolution in Mexico and of ever-threatening revolution (later staged) in Cuba. The amount of attention given to an analysis of this field differed with the varying significance of the land ownership issue in the countries studied and also with the special and different interests of the analysts.

Little need be said about the study of basic rural social institutions. Such a study would be considered an imperative by all sociologists. The discussions of the authors are fairly adequate, but probably make little sociological contribution beyond the reporting of facts.

The analyses of locality groups may very well be considered one of the sociologically important contributions of the studies. Taken together, the countries studied have locality groups which represent a range from tribal to urban. For the most part, the farm people live in neighborhood communities. The importance of these and other locality groups in the structure of these societies is pointed out. The different constellations of factors influencing their cohesiveness are discussed in some detail: isolation, ethnic and nationality composition of local groups, influence of kinship groups. Factors related to the occupancy of land, different settlement patterns, and such special types of communities as the ejidos in Mexico, which promoted colonies in most of these countries, and types of groups on haciendas provided opportunities for special studies. Treatment by the authors varied

from maps and sociograms to what might be called theoretical discussions. Again this treatment varied with the extent to which statistics were available, the amount of field work that could be done, and the professional interests of the analysts.

Although level of living was not listed as one of the major fields to be investigated, all analysts did attempt to make such an analysis. They did this in spite of the fact that the data in some of the countries were exceedingly poor, and they could not therefore compile the sort of data which level-of-living studies in the United States had used for a couple of decades. Apparently, however, their professional concern with this field was so great that, in spite of these facts, each attempted to contribute something to sociology by dealing with this topic.

It should also be noted that these rural sociologists, who were attempting to understand societies or cultures other than their own, became convinced that the origins of the people and the history of the development of the country, to which they had given only minor attention in studying their own society, were essential in understanding practically every problem they desired to analyze.

This account does not try to answer specifically the original question concerning the extent to which studies of this kind can use regular research methods and, if so, what methods. It has noted the difficulties due to limitations on time, the scarcity of trustworthy published statistical data, and the sharp limitations in detailed field studies. It has indicated that sample field studies are so costly as to be unfeasible unless elaborate financial and personnel assistance is provided by the host country. It should be pointed out further that discrete regional social universes, with the exception of local communities, do not exist in societies which have moved to varying extents out of tribal or isolated village social structures but have not yet clearly become economically differentiated or specialized by the operation of a thoroughgoing price and market economy.

In studies of the kind attempted in this undertaking, little more can be done than to describe as accurately as possible some country profiles, regional or linear, to use such published data as are available, and to make such field visits as are possible. The authors used information from each of these sources to interpret and fructify information from the other sources. To claim that much more than this has been done is to rest analyses unduly on published statistics, which are often inaccurate, or to give too much credence to one's capacity to understand and interpret what he sees and hears in his necessarily impressionistic field observations.

Such studies must be evaluated in part by what they can and cannot be in terms of sociological findings. Their value will inevitably be judged by sociologists who have never attempted such difficult assignments and by many who are accustomed to high standards of research

data and well-trained personnel. The judgment of those who made these studies is that each learned much and reported data and insights which are valuable to the State Department and other agencies and that each also made some contributions to the knowledge of other sociologists. Nelson, who was able to make some detailed field studies, says, "We need many more concentrated studies, but there is no substitute for the generalized book concerned with presentation of an image of the country itself." Whetten, who was privileged to work for three years on his study, says, "Broad studies of this character are useful in portraying the overall structure of society and the general level of living. They provide bench marks from which special studies may stem. The principal defect is that they are so broad that one cannot delve as deeply as one would like." According to Leonard, "To the extent that reliable information is desired on a particular country, this type of study is of value. Actually it can be the only such information in many major areas of the world." Smith says, "I personally think this is the best approach in a sociologically unknown part of the world. Once it is sketched out, in broad outline, hundreds of others then help to fill in the details."

Not only have some of the expected follow-up studies been launched and completed, but those who made the studies have knowledge of other influences which the studies have had. They believe that the presence for a year or more of a rural sociologist, spending all his time making sociological inquiries, became widely known about in each country. Professional persons who had been giving attention to this field gained encouragement from the presence and work of the sociologist, and other persons, not privileged to follow their dominant professional interests, made themselves and their interests known and received encouragement from the visiting sociologist. University instructors in economics, history, law, and even medicine, among others, sought out and visited with the sociologist. Some of these, in addition to making contributions to the work of the sociologist, had their own interests heightened and probably had their judgments sharpened.

Government agencies responsible for programs which the sociologists were studying became interested in finding out what these social scientists were learning, sought their counsel, and sometimes became aware of some of the things they needed to know. The heightened desire to know was illustrated in a number of ways. Certain agencies tabulated or retabulated census and other data and asked the visiting sociologist to meet with their staffs; in some instances staff members were assigned to accompany the sociologist on field trips. In one instance three different government departments sought to employ the young man engaged by the visiting sociologist to assist in his study. When this young man later accepted one of these positions, he was

sent to the United States for eight months' university study and intern work in a research organization similar to the one which he was to head when he returned to his own country. In some countries there have been even greater and more continuous carry-overs of this type. Students have been stimulated to come to the United States for advanced training and have returned to their own countries to develop professional careers and do professional sociological work.

The visiting sociologists were invited to lecture at host-country universities and before professional and semiprofessional groups as well as before other groups which, if not professional, were promoting progressive social thought and action. The work these sociologists did and the books they wrote have made the field of rural sociology known and accepted in these countries. The Sociological Society of Mexico, for example, dedicated one of its annual meetings to a discussion of rural sociology. In a few instances courses in rural sociology have been established in Latin-American universities for the first time. Other social scientists, teaching in the universities, have also come to the United States for advanced studies and in a great many cases have taken rural sociology courses as a part of their training.

It can probably be taken for granted that the fact that these rural sociologists have worked in these five countries has created the impulse for others to go not only to Latin America but to other countries. Some of those who have gone more recently have been privileged to make more intensive studies than were possible or were conceived by those who first went. Each of the original five has continued his interest in international work, and each of them has now studied in countries other than the ones to which he went on his first assignment. The dedication of this issue of RURAL SOCIOLOGY to Latin America is also an index to a development of unusual interest, to which these early rural sociologists and their books contributed.

ALVARO CHAPARRO
and RALPH H. ALLEE

Higher Agricultural Education and Social Change in Latin America

This paper reports the results of an exploratory survey of higher agricultural education in Latin America and relates these and other findings to "development." Education in general and agricultural education in particular are placed in a cultural context, which in turn is utilized to explain the current situation with regard to education in Latin America. Attention is also given to future trends and the probable increase in social science training throughout Latin America.

Alvaro Chaparro is a rural sociologist and FAO Agricultural Education Specialist in Rome. Ralph H. Allee is Director of the Inter-American Institute of Agricultural Sciences, Turrialba, Costa Rica.*

IN 1955–1956 an exploratory survey of Latin American colleges of agriculture was made, with the purposes of finding out their adequacy to satisfy needs for technically trained personnel and of observing the main factors affecting the performance of their role and functions in rural and agricultural development. Schedules were administered to deans, professors, students, college graduates, and heads of agricultural services in several countries. A preliminary report, distributed in 1957, served as a basis for discussions at the first Latin-American Meeting on Higher Agricultural Education, held in Chile in 1958. This meeting laid the foundations for the development and improvement of higher agricultural education and started a movement which has had different manifestations in each of the twenty countries of the region. The exploratory nature of this survey is evidenced by the fact that it emphasized the similarities, overlooking the many and important differences, which exist between Latin-American countries and their

*Based on a report published provisionally in 1957 by the Food and Agriculture Organization of the United Nations (FAO) and the Interamerican Institute of Agricultural Sciences of Costa Rica.

institutions. Further surveys and studies are needed to point out such differences.

THE PROBLEM OF DEVELOPMENT

It is difficult to give an objective definition of "development" with universal application, since it implies the promotion, guidance, and acceleration of processes of social and cultural change toward "desirable" ends. Ends and means are culturally defined. Desirable ends and effective means in one place might not be desirable or effective in another. There is no such thing as a balanced social and cultural development, as every society emphasizes one or another aspect to the neglect of others, according to its basic ethos and purposes. For this reason there is much controversy over the term "underdevelopment." Latin-American societies are proud of their "cultural" traditions, using the term in a restricted sense, and point out that their "underdevelopment" is an "insufficient economic growth." Conflicting views on the value, convenience, or effectiveness of given ends and means may also be present in a given society. While accepting the economic and social importance of agriculture, most Latin-American societies prefer to invest in military strength. Despite pride in their "cultural traditions," the national investments in education are very small. Although Latin-American societies are proud of their universities, these are poor and neglected institutions. While convinced of the contemporary importance of science and technology, young people entering these fields do not feel socially encouraged to venture to compete for status with traditionally consecrated professional fields. The great mass of population, mostly rural, although composed of outspoken followers of democratic ideals, does not have opportunities for growth.

Development could be viewed as increased effectiveness in satisfying the basic prerequisites for survival and continuity.[1] As societies move along the continuum "sacred-profane" the ends rise above the level of simple survival, the basic requirements become culturally elaborated sets of needs, and the societies adopt more rational and efficient means to satisfy them.[2] In order to achieve certain ends, societies are organized into specific patterns of relationships, or institutions, which are the instruments for social action. The more advanced a society is along the continuum of development, the more complex its needs and the more elaborate and efficient the institutions should be to fulfill their functions properly. This means that the development of institutions is a prerequisite for economic, social, and cultural development.

Institutions and development: Science and technology are more and more recognized by most social groups in Latin America as the necessary

[1]See J .W. Bennett and M. H. Tumin, *Social Life* (New York: Knopf, 1948).

[2]See C. P. Loomis and J. A. Beegle, *Rural Social Systems* (New York: Prentice-Hall, 1950).

rational means to satisfy such prerequisites as the improvement of biological adequacy of individuals and the proper production and distribution of goods and services, leading toward higher levels of human existence. The present processes of social change involve the gradual acceptance and clarification of these new aims and of their consequences. The present underdevelopment is due mainly to the inadequacy of the institutions which should perform such functions. Inadequacy of institutions means weakness of their type-parts, that is, their purposes, norms, personnel, and material instrumentalities and resources. There are institutions whose main function is to promote development, such as an agricultural extension service or an agricultural college. These institutions should be recognized as key elements for the promotion of desirable ends. Their main function is to promote the growth of individuals and groups as the creators, carriers, and users of the new cultural achievements. In order to do this they should clarify their own objectives, improve their norms of action, recruit the kind of personnel efficient for the purpose, and acquire the necessary financial and material tools to carry out their objectives. The problem of development in Latin America is heightened by the weakness and inadequacy of institutions the main function of which is precisely to promote it.

Educational institutions and development: In no other field do conflicting ideas on the purposes or meaning of development more dramatically present themselves than in education. The consequences of this are the contradictory functions of education and the differential emphasis on one or another aspect or level of education.

For some leaders and groups education is a conservative force, and its main function is the transmission and consolidation of basic values and cultural traditions. Education has a value per se and knowledge is transmitted for its own sake. Education is not viewed as an investment from which returns should be expected. The emerging social needs are secondary. Education has a prestige value and is looked after for the sake of the social prestige it is supposed to give individuals. Education becomes academic and tends to be limited to socially selected minorities. The functions of education in economic and social development are overlooked.

Other leaders and groups see education as an agent for the promotion of change. If education does not bring about social changes, it should at least be sensitive to them and constantly adapt to new economic and social conditions. Institutions for the promotion of change cannot efficiently operate if their personnel are not properly educated. Institutions should be prepared to absorb new ideas and methods and adapt themselves to the new conditions. Furthermore, these institutions view education functionally and pragmatically. Prestige is secondary, or education should endeavor to change the terms of the scale of profes-

sional prestige. Education is not a privilege, but development requires the discovery and training of available talents, both in rural and urban areas and up and down the social scale.

An even cursory examination of education in Latin America reveals that (a) primary education has been neglected, especially in rural areas, as demonstrated by the high percentage of illiteracy; (b) secondary education has been limited to towns and cities but has failed to reach the lower and lower middle classes and the rural areas; (c) secondary education has been mostly academic and humanistic and has failed to satisfy the needs of a majority of students who have had the good fortune to attend high schools; (d) university education has failed to perform the functions which it should have performed in response to the human resource requirements for economic and social development.

The data presented in Table 1 give some factual support to these statements and suggest some important differences among Latin-American countries. A separation of eighteen countries into three categories, according to degrees of general educational development, can be observed in this table. The first category, with illiteracy below 30 per cent, includes countries such as Argentina, Uruguay, Costa Rica, Cuba, and Chile, which also have the highest enrollment per thousand inhabitants in primary, secondary, and university education. A second category includes countries with illiteracy above 30 per cent and below 60 per cent. The third category, with illiteracy above 60 per cent, includes mostly Central American and Caribbean countries. The enrollment in primary, secondary, and university education seems to decrease as illiteracy increases.

Two additional observations from Table 1 deserve mention. The first is that a very limited proportion of students enrolled in primary education ever reach the secondary school, and the second is that, in contrast with this fact, a great proportion of students enrolled in secondary education do reach the university. This indicates that the main, if not the only, function of secondary education has been to prepare the student for entering the university.

Higher education and development: Latin-Americans have generally valued university education very highly. National, state, and private institutions for higher education exist today even in areas where primary and secondary education are utterly inadequate. What has made this possible is the fact that the kind of education offered does not require more than a classroom, a teacher, and outdated textbooks. The promotion of development requires that one or another institution study systematically the problems of the country, carry out long- and short-term research programs, encourage the development of science and technology, train the personnel needed in different fields of development, and prepare and equip the national leaders with the ideas

Table 1. Percentage of illiteracy and enrollment of students per thousand population in primary, secondary, and higher education in Latin-American countries in specified years*

Country	Year	Population (in thousands)	Illiteracy		Enrollment per 1,000 population		
			%	Year	Prim.	Sec.	Higher
Haiti	1952	3,200	90	1950	42.2	2.7	0.2
Bolivia	1950	3,019	80	1943	48.7	7.8	1.7
Dom. Rep.	1952	2,236	74	1935	111.0	7.0	1.0
Guatemala	1950	2,803	72	1950	67.2	6.7	0.8
Honduras	1952	1,513	65	1950	76.7	3.9	0.6
El Salvador	1952	1,986	61	1950	92.6	8.7	1.3
Venezuela	1951	5,071	58	1941	105.0	8.0	1.3
Peru	1951	8,558	58	1940	120.0	9.0	1.5
Mexico	1952	26,332	54	1940	107.7	6.2	1.4
Brazil	1950	52,124	51	1950	99.3	12.0	0.7
Colombia	1952	11,768	44	1938	70.0	7.0	1.0
Ecuador	1950	3,203	44	1950	110.0	9.0	1.3
Panama	1950	797	30	1950	140.0	24.0	2.1
Chile	1949	5,712	27	1940	127.0	23.6	1.7
Cuba	1950	5,362	24	1943	132.0	9.0	3.1
Costa Rica	1951	825	22	1950	156.8	10.0	1.8
Uruguay	1950	2,353	15	1938	111.0	16.0	3.0
Argentina	1950	17,197	14	1947	123.0	9.2	4.6

*Data taken or calculated from the *World Survey of Education* (UNESCO, 1955). Data lacking for Nicaragua and Paraguay.

and techniques necessary for the promotion of progress. This the Latin-American universities have failed to achieve. Usually strongly autonomous, the universities have not encouraged academic freedom for the promotion of science and advancement of technical knowledge, because such advancement has not been an important purpose to them. The autonomy and independence of the universities have been expressed most often as freedom to fight the current dictator or political boss, since universities have been a reservoir of liberal political ideas. However, the autonomy of universities and their resulting stability make them the institutions which can create and maintain a reservoir of human skills and leadership and which can do what other institutions cannot do, that is, study the national problems, promote research and experimentation, develop new ideas and methods, train the personnel

needed by national development in different fields and at different levels, and promote and encourage the education of the population in general.

Traditionally, higher education has mainly served desires for social prestige; by so doing, it has been a conserver of the social structure. Upper social classes have attended the university because this is a requirement for social prestige and national leadership. Middle classes, to which the bulk of university students belong, have used it as a channel for upward social mobility. This fact accounts for the great interest in law and politics, which have offered the quickest and easiest channels for advancement on the social scale. All other channels have been difficult, since the national economies have been, and are, mostly agricultural, and the land has been under the control of a small minority. To study law, enter political arenas, and accumulate land have been the ideals of ambitious young men.

New social changes are under way in the Latin-American social structure, and it is hoped that they will have a great impact on education in general and on higher education in particular. In the first place, Latin-Americans view the future today with confidence, hopefulness, and security. This new attitude seems to be gradually replacing the traditional negativism, skepticism, and hopelessness. In the second place, it is known that Latin-Americans place great value on industrialization, even to the neglect of agriculture. Industry and commerce have been creating a new kind of economic leadership, which appears likely to take over leadership in politics and other fields, from the agrarian elite. While the agrarian groups who control ownership of the land hold on to their ideals of abundant, cheap rural labor and extensive methods of exploitation of the land, the new commercial-industrial groups operate with ideas of economic efficiency. As a result they value the education of the masses as creating potential markets for their products, the training of personnel in new technological methods, and the orientation of education toward the new requirements for national development. Higher education is feeling the impact of new ideas.

DEVELOPMENT AND FUNCTIONS OF HIGHER AGRICULTURAL EDUCATION

Industrial development, in order to be successful, should be accompanied by agricultural and rural development. This fact places great responsibilities on agricultural institutions and particularly implies that the university should prepare to make its contributions to rural development. The population in Latin America is rapidly increasing, urbanization is a notable process, and farm populations are already decreasing in most countries. This creates an increasing demand for agricultural products and the need for accelerated technological

development of agricultural methods, in order to break down cultural barriers of isolation and rural traditionalism. Uneven distribution of rural population creates the need for colonization of new areas and resettlement of rural groups and communities. Greater efficiency in tropical and subtropical agriculture requires a considerable amount of research, proper training of personnel for this purpose, and better education for the mass of producers. Uneven distribution of land is a much-discussed subject and land tenure reforms are current problems. Commercialization of agriculture in its productive and distributive aspects requires a new mentality in the producer and new aspects of farm co-operation and association.

That colleges of agriculture are becoming conscious of their new responsibilities is evidenced by the interest awakened by the first Latin-American Meeting on Higher Agricultural Education and by the many reform schemes which are under discussion. A number of new tendencies emerging in colleges of agriculture imply an expansion and clearer definition of their functions. The facts indicated below constitute an examination of such tendencies and a discussion of the factors and problems which affect the proper fulfillment of their new functions.

The functions of colleges of agriculture could be expressed as follows:

1. To educate and prepare the number and kind of technicians required by agricultural and rural development programs.

2. To promote the development of research and experimentation in different fields of knowledge applicable to agricultural and rural improvement, giving due consideration to the social and economic aspects which have been neglected up to the present time.

3. To promote the development of education below college level, to aid the formation of a middle-level agriculturist stratum, and for the education of the mass of rural families and producers.

4. To encourage co-ordination among different branches of the university and between the universities and existing agricultural services, for a better understanding of the problems of rural development and for more stable and efficient growth of institutions serving agriculture and rural life.

PRODUCTION OF THE NUMBER OF AGRICULTURISTS NEEDED

There are today nearly forty-five colleges of agriculture, annually graduating nearly 1,300 agriculturists; the total enrollment is over 7,000. In 1957 there were nearly 16,000 university graduates in agriculture, while the actual demand was calculated to be at least twice that number. On the basis of trends of growth in enrollment and in the number of graduates, calculations indicate that in 1965 the forty-five colleges of agriculture will enroll nearly 8,600 students and will

graduate nearly 1,600. The increase in demand is probably greater than the increase in the number of graduates, however, and therefore the disparity between demand and supply is likely to increase, if factors affecting the enrollment in colleges of agriculture are not modified. These figures are rough calculations, of course, as the appraisal of future manpower needs is difficult.

It seems that the reason for the scarcity is not the lack of colleges of agriculture or their uneven geographical distribution. Of the forty-five colleges, five were founded in the last century, twenty between 1900 and 1945, and twenty between 1945 and 1956. With two exceptions, all the countries have at least one college. There are twenty colleges in the southern countries of South America (Argentina, Brazil, Chile, Paraguay, and Uruguay). In the Andean countries of South America, from Venezuela to Bolivia, there are ten colleges. There are four colleges in Central America, three in the Caribbean area (excluding Puerto Rico and Jamaica), and four in Mexico. Of the forty-five colleges, fifteen are located in or near national capitals and thirty are located in or near provincial capitals. As to the sources of financing and authority controlling them, thirty-two use national funds, ten depend on provincial or state funds, and three are private. Universities, public and private, control thirty-seven of them and executive branches of national or state governments control eight colleges. Although there are cases of private donations for the support of colleges of agriculture, this is not a frequent occurrence in Latin America.

One immediate reason for the scarcity of college graduates is the limited enrollment of students, much below the actual capacity of the colleges. In 1956 there were 3,519 students in twenty-six colleges of agriculture, with a capacity of up to 6,165 students. These colleges were utilizing only fifty-seven per cent of their capacity as indicated by their respective deans. The problem has been, and is today, of special concern in Brazil, where enrollment is very low in relation to capacity of schools. As a result, at the request of the schools, the Rural Association for Credit and Assistance (ABCAR) has undertaken to study the problem carefully as a basis for promotion of enrollment of students for colleges of agriculture and veterinary medicine, rural social work, and rural home economics.

The relative scarcity of college graduates in agriculture does not have the same dimensions in all Latin-American countries. Table 2 shows the relation between numbers of agricultural graduates in 1957 and the total population of each country. While in southern countries of South America and in Costa Rica this relation is relatively favorable, in most Central American countries and in Paraguay and the Dominican Republic it is very unfavorable. One additional important fact is disclosed in this table: the relative scarcity of agricultural graduates seems to be closely associated with the degree of illiteracy. This fact is

representative of the considerable differences which exist among Latin-American countries; the scarcity of agricultural graduates does not seem to be closely associated with total enrollment in secondary and higher education because, as indicated in Table 1, the great differences in rates of illiteracy do not correspond to equal differences in enrollment in secondary and higher education. Differences shown in Tables 1 and 2 are not capricious facts but the result of national conditions; it follows that there should be considerable differences in such conditions and that it is dangerous to make generalizations about Latin America as a whole. It also follows that the search for such differences,

Table 2. Number of agricultural college graduates and percentage of illiteracy in Latin-American countries, 1957

Country	Total population*	College graduates*	Population per college graduate	% of illiteracy†
Costa Rica	969,640	550	1,763	22
Chile	6,849,000	1,700	4,029	27
Uruguay	2,630,000	500	4,383	15
Argentina	19,294,000	2,500	7,718	14
Mexico	30,538,000	2,600	8,705	54
Cuba	6,241,000	700	8,916	24
Brazil	59,846,000	4,500	13,299	51
Haiti	3,324,000	222	15,063	90
Colombia	12,940,000	700	18,486	44
Peru	9,605,000	500	19,210	58
Venezuela	5,949,400	300	19,831	58
Bolivia	3,236,000	120	26,966	80
Ecuador	3,675,000	104	35,336	44
Panama	934,400	24	38,933	30
Nicaragua	1,279,000	27	47,370	—
Honduras	1,660,000	11	150,909	65
El Salvador	2,193,000	13	168,701	61
Paraguay	1,565,000	5	313,000	—
Guatemala	3,325,000	9	369,445	72
Dom. Rep.	2,606,000	3	868,667	74
Total	178,689,440	16,088	11,107	—

*Alvaro Chaparro, *Un Estudio de la Educ. Agricola Universitaria en A. Latina* (FAO Estudio agropecuario No. 48; Roma, 1959), p. 27.

†Data taken or calculated from the *World Survey of Education* (UNESCO, 1955).

especially those of an institutional nature, is a very important undertaking.

FACTORS ASSOCIATED WITH SCARCITY OF AGRICULTURISTS

What are the national conditions that may give a rational explanation of the low student enrollment in colleges of agriculture and the scarcity of agricultural graduates? The considerable national differences in the relative scarcity of college graduates indicate that such factors, whatever they are, are present in some and absent in others, or at least are present with quite different intensities.

There seem to be some factors influencing the supply of agriculturists and other factors associated with their demand by agricultural services and by the agricultural industry in general. Although both sets of factors should be very much interrelated, they can be separated for purposes of analysis. A tentative classification of some of the factors involved is given below:

1. Factors influencing the supply.
   - *a.* Conditions and characteristics of students.
     - i The rural-urban background;
     - ii the complex of land tenure and the social stratification systems.
   - *b.* Conditions and characteristics of education in general and of colleges of agriculture in particular:
     - i illiteracy and lack of rural opportunities;
     - ii low prestige and weakness of nonliberal professions and of agricultural colleges.
2. Factors influencing the demand for agriculturists.
   - *a.* Conditions and characteristics of agricultural services and programs.
   - *b.* Conditions and characteristics of agriculture and of rural societies.

The rural-urban background: Most agricultural students and graduates have an urban background, as shown in Table 3. Nearly forty-five per cent come from cities, between twenty and thirty per cent from towns, and between twenty and thirty-five per cent from rural areas. Differences between countries, however, are great. Costa Rica and Uruguay probably have higher percentages of students and graduates with rural backgrounds, due to more extended educational systems, better distribution of land, and less accentuated differentials between urban and rural populations and cultures. On the other hand, in Peru, Ecuador, and Bolivia, rural education is less developed, land is concentrated among fewer owners, presumably urban residents, and the social and cultural differentials between the white urban groups and

the rural indigenous communities considerably limit the opportunities of rural boys.

Further inquiries are necessary before establishing whether or not there actually is a close relationship between the scarcity of agriculturists and rural-urban backgrounds of students. The assumption is that there is. Although this relationship would not be a caused one, it would throw light on the factors affecting the scarcity. Obviously, urban youth could not be expected to be interested in agricultural professions unless they offered opportunities for individual success and achievement. Also, urban boys lack farm experience and often have a limited knowledge of the simplest facts of plant and animal life and of rural social life. Colleges of agriculture should keep this in mind when planning their training programs. The matter is even more important in countries with rural Indian populations, since it is likely that graduates with city backgrounds have never appreciated the facts of Indian life.

Table 3. Number and percentage of students and agricultural college graduates according to rural-urban background, 1956*

Where childhood was spent	Students		College grads. 5 countries		College grads. Colombia		College grads. Mexico	
	No.	%	No.	%	No.	%	No.	%
Cities	74	45.3	52	44.9	166	42.1	520	43.7
Towns	32	19.4	39	33.6	131	33.2	328	27.5
Rural areas	58	35.3	25	21.5	97	24.7	282	23.6
Total	164	100.0	116	100.0	394	100.0	1,192	100.0

*Chaparro, *op. cit.*, pp. 31–35.

Land tenure and social stratification: An examination of the occupations and the land tenure status of the fathers of the graduates is helpful in understanding the problem of the scarcity of college graduates.

The proportions of the groups of students and agricultural graduates whose parents belonged to given occupational groups are very similar, as shown in Table 4. About one-fifth were sons of professionals, a term applied to graduates of universities in Latin America. Over one-fourth were sons of merchants and industrialists, and over one-fourth of farmers and livestock growers. Nearly one-sixth were sons of white-collar workers. A small proportion of sons of urban artisans or laborers appear in the group of graduates. Logically, the urban character of most

Table 4. Professional or occupational status of parents of students and graduates, 1956*

Occupations	Students		Graduates	
	No.	%	No.	%
University professions	37	22.5	23	19.1
Commerce and industry	47	28.7	33	27.2
Farming and livestock-raising	45	27.5	34	28.1
White-collar work	28	17.1	17	14.1
Artisans and laborers	—	—	14	11.5
No information	6	4.2	—	—
Total	164	100.0	121	100.0

**Ibid.*

agricultural students and graduates should be tied up with the urban occupations of their parents.

On the basis of the occupation and the land-tenure status of the parents, a rough measure of students' social status was calculated, by assigning arbitrary values of 1 to 3 to different occupations and to different land-tenure conditions. Social status levels from 1.0 to 3.0 were assumed. The results are presented in Table 5. The strikingly similar data for students and graduates, aside from indicating the validity of the classification, suggest the stability of the pattern. The five status groups could arbitrarily be denominated "upper," "upper-middle," "middle," "lower-middle," and "lower." Nearly three-fourths of the students and nearly two-thirds of the graduates come from the "middle" and "lower-middle" categories.

Table 5. Percentage of students and graduates in different social status levels, 1956

Groups	Social status levels					Total %
	1.0	1.5	2.0	2.5	3.0	
Students	10.0	7.5	47.8	25.1	9.6	100.0
Graduates	10.4	8.0	42.4	20.8	18.4	100.0

The factors of rural-urban background, occupations, land tenure, and social status, as indicated above, make possible the characterization of an agricultural student in Latin America as a middle-class

boy from a town or city, landless or middle-to-small owner of land, but generally associated with nonagricultural occupations. This picture permits understanding of a number of problems or issues associated with scientific and technical occupations generally, or with agricultural professions in particular, in Latin America.

The first issue refers to the role of the middle classes in scientific and technical development. Neither the higher nor the lower classes provide the human material for such development. The upper-class youth, who has the educational opportunities of his choice, is interested in a university career, as it fulfills the educational requirements for his social prestige and class membership. The rejection of other careers is evidenced by the fact that, among the sons of landowners, the smallest proportions belong to large owners of land, traditionally associated in Latin America with high social status. A similar and corroborating situation was found in a study on the diffusion of farm practices among large coffee growers in Costa Rica,[3] in which it appears that, although half of them went to universities and a few to agricultural colleges, higher education was not associated with higher acceptance of new farm practices. It was also found in this study that the innovators were generally dynamic men of enterprise who came from the middle class of the group of large landowners. If middle classes contribute most of the technicians available, the number of technicians should increase with the growth of urban and rural middle classes. Some evidence is supplied by the fact that Costa Rica and Uruguay, with the highest relative numbers of agricultural technicians, are also countries which have more highly developed educational systems, but also a relatively more developed rural middle class and broader distribution of agricultural land. The role of middle classes in the scientific and technical development of Latin America deserves careful study.

A second issue refers to the influence of the landed classes on the supply and demand of agricultural technicians and scientists. Few sons of *hacendados* study agriculture, because they choose professions which give them higher social prestige and because their needs—as far as management is concerned—are satisfied with a *mayordomo,* or overseer, who usually has a low education. Technology is not needed as the methods of production are of the extensive type of agriculture, with low productivity but abundant and cheap labor.

It can be safely said that demand for agricultural technicians is stronger at present, and increasing faster in countries and areas where technology is rapidly replacing the traditional methods.

A third issue refers to the bureaucratic character of agricultural professions in Latin America. A common criticism of agricultural students has been that they not only lack farm background and experience, but

[3]Alvaro Chaparro, "Role Expectation and Adoption of New Farm Practices" (Ph.D. dissertation, Pennsylvania State University, 1955).

are not willing to farm and to "get their hands dirty," expecting only goverment jobs. This criticism is not only unfair but lacks objectivity. It is the expression of what is considered an ideal situation, in which an increasing number of independent farmers should have a college education. In Latin America, as the dean of a Brazilian college observed, it would be a costly luxury to give farmers college educations, since most of them hardly receive a primary education and the few college graduates are needed for research, extension, and other expanding development services. On the other hand, the landless middle-class youth could hardly be expected to farm, as the acquisition of land and credit is often beyond their possibilities. Their occupational roles are limited to a great extent to work in governmental or nongovernmental agricultural services, in which low salaries, instability, and limited stimuli to productive and creative work are the common lot. It is no wonder that so few high school graduates make the adventurous decision to dedicate themselves to the service of agriculture and rural life. Frustration seems to be frequent among agricultural graduates.

QUALITATIVE ASPECTS OF HIGHER AGRICULTURAL EDUCATION

If the matter of numbers of agricultural graduates is a complex one, the question of the kind of education and training that should be offered is even more so. Several questions keep deans and professors busy at the present time. Should the college offer a general or a specialized training? What basic training should be offered? On what specific fields should emphasis be placed? Should the colleges emphasize rural social sciences in their curricula? Should the training be essentially practical? How can colleges promote research on and outside the campus? How can they maintain constant contact with national needs, and how can colleges adapt themselves quickly to such requirements? How can they form and maintain a team of full-time professors?

The first Latin-American Meeting on Higher Agricultural Education collected and discussed the Latin-American experiences, organizing these questions into a series of principles and recommendations which most faculties today are trying to incorporate into their programs.

Objectives of higher agricultural education in Latin America: One conclusion of the Meeting on Higher Agricultural Education was that there should be clearer definitions of the purposes, aims, ideals, and principles guiding the new developments in faculties of agriculture. A set of ten purposes was suggested, later recombined and reduced to seven, as follows:

1. To stimulate and create the spirit, the method, and the scientific ambition, the faculty should lead in the promotion of all activities directed toward application of science to the study of problems of agriculture and rural life.

2. The faculties should consider the need for scientists, educators of the rural population, and private enterprise. The meeting expressed its conviction, contrary to traditional attitudes and beliefs, that Latin-Americans are not only capable of scientific achievement, but are developing a desire and an ambition to carry this out.

3. Faculties should abandon their traditional isolation and rigidity and become flexible, offering opportunities to students according to their interests, capabilities, and needs, including opportunities for training groups of students in special fields below the level required for graduation.

4. Teaching methods and programs of study should offer the student an opportunity for self-expression and creative work.

5. The curriculum should be based on a balanced co-ordination of the mathematical, physical, biological, and social sciences, as they apply to problems of agriculture and rural life. The meeting recognized that "the agricultural problem is a complex of physical, biological, economic, social, and cultural factors" and that students should be given opportunities to observe and understand this complex in theory and in practice.

6. Faculties of agriculture should leave the door open to higher education for the many capable rural youths in Latin America who are at present almost completely deprived of educational opportunities.

7. Faculties of agriculture should aim toward the development of stable agricultural institutions and the improvement of professional ethics and prestige of agricultural technicians and scientists.[4]

General United States specialized training: Opinions expressed both during the survey and during the meeting indicated the need for offering opportunities to acquire deeper training in some important fields to meet the requirements of modern technological advancement as it can be applied to Latin America, but without extreme specialization or the destruction of the broader view which results from a balanced general base. The Assembly expressed the view that Latin America should favor the formation of the expert, efficient in his own field but able to avoid an underevaluation of the fields of others. A basic program of three years, including a balanced number of courses in the mathematical, physical, biological, and social sciences, followed by an "orientation" program of two years, was recommended. "Orientation" rather than "specialization" was the term deliberately chosen by the Assembly. "Specialization," however, is not disregarded and it was considered as a further graduate level. Fields such as extension and education, animal husbandry, agricultural engineering, rural industries, soils and genetics, plant pathology, and entomology, are

[4] *Informe de la Primera Conferencia Sobre Educacion Agricola Universitaria* (Roma: FAO, 1958), pp. 19–21.

included in the list of needs for "orientation" and further specialization.[5]

A number of interesting issues arise connected with the problem of special orientation or specialization. First, it was found that an agricultural graduate in Latin America, although dedicated for a time to a given field, actually shifts from one field to another during his professional life, making specialization somewhat hazardous. Second, specialists trained abroad have had a difficult time readjusting themselves to national institutions which are usually not prepared to provide them with the opportunities to develop their newly acquired skills. Third, the development of knowledge and skills in different fields has been challenging the traditional "professional unity" of agricultural graduates, opening the door to new, well-defined professional fields in agriculture. The professional associations based on special interests and fields have been gaining importance, instead of the old "associations of agricultural graduates." Fourth, the process of professionalization of given fields of activity (extension, agricultural engineering, animal husbandry, agricultural economics, and so forth) has paralleled the development of competition or conflict among different university colleges and faculties for proficiency in the field concerned; take for example the rivalry between agricultural graduates and veterinarians for the field of animal husbandry, a competition which is leading toward the organization of special schools of animal husbandry.

The teaching of social sciences: Agricultural colleges have almost completely ignored the social sciences. In Latin America only the faculties of law, philosophy, and the humanities have given them attention. Economics is an exception, for specialized faculties are now becoming popular, and economic courses are offered by faculties of engineering. A field like sociology always has been an area of intellectual speculation for writers, essayists, politicians, and novelists, but not a scientific and systematic observation of social processes for ultimate purposes of social control. A significant step was taken when the first Latin-American Meeting on Higher Agricultural Education indicated that in the basic program there should be courses in economic principles, rural sociology, and cultural anthropology as well as principles of education, and that in the orientation program matters such as extension, agricultural education, marketing, and credit should receive consideration. A number of faculties of agriculture are trying to organize departments of applied social sciences, with courses and permanent full-time staffs in economics, rural sociology, extension, and agricultural education. The faculties have learned by experience that for the improvement of agriculture and rural life it is essential to understand the complex human aspects involved and that is is not enough to possess or to develop in experiment stations a set of new

[5] *Ibid.* pp. 26–28, 31.

agricultural techniques and skills. Faculties of agriculture are planning to select nearby rural areas and communities for systematic observation of agriculture and rural life in their different aspects, where the farm management specialist, the extension man, the expert in agricultural education and training, and the rural sociologist, together with specialists in other fields, closely co-operate in theoretical and practical teaching.

One important aspect of the new trend is that faculties expect to be centers for training and research, but do not expect to operate extension or agricultural research services patterned after the programs of land-grant colleges in the United States.

The future of colleges of agriculture: Sociologists and educators should be interested in following the developments in Latin-American colleges of agriculture today. As small isolated institutions, autonomous or under governmental control as parts of rural universities—a pattern started years ago in Brazil—or as faculties associated with other faculties of a university, they are growing in importance in every country. Colleges of agriculture in universities typically represent a shift away from the purely humanistic university learning toward a scientific and pragmatic function of the university, aware of the economic and social needs of the country.

Colleges of agriculture are likely to play a more important role in the study of agricultural and rural problems and in the formulation of policies and programs. The increased awareness of the importance of social sciences means, among other things, that fields such as rural sociology are likely to find in the colleges of agriculture, more than in other university faculties, fertile ground for development.

JOÃO GONÇALVES DE SOUZA

Aspects of Land Tenure Problems in Latin America

The problem of the relation between man and land in Latin America is assuming great importance. With a population increasing explosively, with 54 per cent of Latin-American manpower devoted to agriculture, and with a technological development which is barely incipient, agricultural land continues to be a factor of the highest productive and social significance. In Latin America land of potential agricultural use is still not scientifically surveyed and analyzed, and the present agrarian property system undeniably constitutes one of the most serious obstacles to economic development and social progress of the twenty Latin-American countries. The large estate and the very small farm operate hand-in-hand. The different forms of landholding—some introduced by the Spanish and Portuguese colonizers, others inherited from the Indians or recently incorporated into rural life as a result of European and Japanese immigration—bring to the problem a wealth of forces worthy of special consideration. This article examines the subject in summary form, concentrating on certain aspects of the problem based on personal observation and on statistical data which have not before been interpreted.

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WHETHER we consider the population of all of Latin America, including both rural and urban, or whether we consider the population from the point of view of gainful employment or manpower, it may be said that a majority of the people of Latin America make their living from rural activities. All of Latin America (except Peru and Uruguay, for which up-to-date statistics are unavailable) had in 1950 a working force of approximately fifty million, of whom about twenty-seven million, representing 54 per cent of the total, were devoted to agriculture, forestry and related activities, like hunting and fishing.[1]

[1]Instituto Interamericano de Estadística, *La estructura demográfica de las naciones americanas* (Washington: Unión Panamericana, 1959) p. 88.

In brief, the economy of these countries, except for small areas in the process of industrialization, is based fundamentally on production of agricultural and livestock origin.

If we keep in mind the extreme limitation of the technological factor in this agriculture—basically for consumption, but also for purposes of export—it is easy to realize the importance played by land alongside labor in this vast region of the hemisphere. The land is not merely one factor of production; it is the most important factor, and the study of its relation to the people living on it or cultivating it has an importance which it is not necesesary to emphasize further.

LACK OF KNOWLEDGE OF AVAILABLE RESOURCES

One of the most serious problems of the relation between man and land in Latin America is that of knowing exactly the extent of available land resources, beginning with a survey of land that can be used for agriculture and livestock. It is well known that in most of the Latin-American countries inventories or surveys of land are imperfect and limited. This situation is explained by the great expanse of abandoned or inaccessible land or land which belongs to the government, the shortage of technically specialized personnel for this type of survey, and the limited financial and technological resources for the scientific study of the problem. There is no soil map, nor is there a well-organized survey of agricultural property. Only recently was there organized a center for study and training at high levels to train Latin-American technical specialists in this field. This is the Pan-American Training Center for the Evaluation of Natural Resources, a project of the Program of Technical Co-operation of the Organization of American States, located at the Rural University of Brazil. Since 1954, 249 technical specialists from all the countries of Latin America and Puerto Rico have been trained in the evaluation of soils and natural resources through photo-interpretation.[2]

As noted at the Latin-American Seminar on Land Problems, sponsored by FAO in Campinas, Brazil, in 1953, in connection with the problem of land and the public domain in the Latin-American countries, the amount, quality, and location of land belonging to the governments differ considerably.[3] This situation makes difficult, if not impracticable, the application of any new and progressive policy of land tenure.

It is obvious that a study must be made of agricultural land from every point of view. In Latin America, in general, there is no precise idea of the extent of agricultural land. Rough estimates and conjectures are current.

[2]Data obtained from the Pan-American Training Center for the Evaluation of Natural Resources (Project 29, Program of Technical Co-operation of the OAS).

[3]Brasil, Comissão Nacional de Política Agrária, *Os problemas da terra no Brasil e na America Latina* (Rio de Janeiro: Ministério da Agricultura, 1954), p. 107.

UNEVEN LEVELS OF AGRICULTURAL DEVELOPMENT AND LAND USE

The Latin-American countries are not all at the same level of agricultural development. Some are more advanced than others in the techniques of agricultural and livestock production. Although the difference between one level and the next is not great, there are rather extreme differences not only between countries, but often within one country. Another factor of Latin-American agricultural economy is the different percentage of effectively cultivated land from country to country. The total area of potential agricultural use varies perceptibly from nation to nation. For example, while Guatemala, Costa Rica, El Salvador, and Honduras (representing the general tendency in Central America) show respectively 83.3, 77.5, 72.9, and 71.4 per cent of their land being utilized in agricultural activities, Brazil, Colombia, and Peru—large countries—have respectively only 10.4, 7.5, and 10.4 per cent of their land being used for such purposes.

If a comparison is made between land being effectively cultivated and the respective agricultural population as shown by the censuses or estimates, a wide variation is noted in arable land per capita. As a result, flat countries, with sufficient agricultural areas and small populations, appear to have high percentages of arable land per productive unit. That is the case of Uruguay and Venezuela where the indices of potential agricultural land per person are, respectively, 6.0 and 4.3 hectares. In the case of Argentina, Paraguay, and Chile these indices are, respectively, 1.8, 1.2, and 1.0 hectares. On the other hand, in Bolivia, where mining is the principal activity, or in Colombia, whose good agricultural lands are overpopulated, the agricultural percentages per capita are, respectively, 0.1, and 0.2 hectares per person. (See Table 1).

For an approximate total of 160 million inhabitants, only 123 million hectares were under actual cultivation at the time of the census, averaging about 0.7 hectares per person. This led an expert of ECLA (Economic Commission for Latin America) to declare: "It is easy to see that, with backward methods of cultivation, shortage of agricultural capital, extremely poor soil and climates unfavorable for agricultural activities, this area is barely sufficient to maintain a population in a state of malnutrition."[4]

HISTORICAL ROOTS OF THE FORMS OF LAND TENURE

The relation between man and the land in the areas considered reflect certain charateristics resulting from the contact of different cultures and of different human groups which, yesterday as today, have

[4]Jorge Alcazar, Comissão Nacional de Politica Agraria, "Os recursos naturais agricolas na America Latina," *Os problemas de terra no Brasil e na America Latina* (Rio de Janeiro: Ministério da Agricultura, 1954), p. 149.

Table 1. Relation of land to population in Latin America*

Country	Year	Total pop. (in thousands)	Arable land (in thousand hectares)†	% total land area	% arable land utilized in agr. activities	Per capita (in hectares)
Argentina	1949	16,818	30,000	10.8	20.7	1.8
Bolivia	1949	3,990	342	0.3	—	0.1
Brazil	1950	50,350	18,835 (1940)	2.2	10.4	0.4
Colombia	1949	11,015	2,120	2.0	7.5	0.2
Costa Rica	1949	851	760	14.9	77.5	0.9
Cuba	1950	5,348	1,970	17.2	33.4	0.4
Chile	1950	5,823	5,873	7.9	46.4	1.0
Dom. Republic	1949	2,277	680	13.7	54.0	0.3
Ecuador	1949	3,404	1,200	4.4	44.1	0.4
El Salvador	1949	2,150	430	12.6	72.9	0.2
Guatemala	1950	2,787	3,000	27.5	83.3	1.1
Haiti	1949	3,750	460	16.6	—	0.1
Honduras	1949	1,326	550	3.6	71.4	0.4
Mexico	1950	25,210	20,000	10.2	16.7	0.8
Nicaragua	1949	1,184	470	3.4	10.1	0.4
Panama	1949	764	140	1.9	—	0.2
Paraguay	1949	1,304	1,550	3.8	—	1.2
Peru	1950	8,405	1,576	1.3	10.4	0.2
Uruguay	1949	2,365	14,284	76.7	—	6.1
Venezuela	1949	4,644	20,000	21.9	40.0	4.3

*Sources: UN, Food and Agriculture Organization, *Yearbook of Food and Agricultural Statistics* (Washington, 1949), p. 14; UN, *Population and Vital Statistics Reports* (Washington, 1950), pp. 4–6; UN, *Reforma Agraria* (Defectos de la estructura agrícola que impiden el desarrollo económico) (New York: 1951), pp. 110–111.

†A hectare equals 2.47 acres.

formed the twenty Latin-American countries. Land ownership, tenancy, or sharecropping is not an act of outright economic exploitation but a hybrid product of the contact of different cultures which have intermingled and still continue to affect the development of the Latin-American countries; each national group and historical culture—the Spanish conquerors, the prisoners of the past, the natives there at the time of the discovery, the Negroes imported from Africa, and the European and Asiatic immigrants of modern times—had its own

distinct and characteristic form of land tenure, which became rooted in this part of the world.[5]

The large landholding *(latifundio)*, the plantation system, the Spanish "grants," or the land apportionment of Portuguese America (Brazil) are typical institutions created by the conquerors from the Iberian Peninsula in America. They subjugated the Indians and the Negro, who were treated as the slaves of these institutions for which they were compelled to work and from which they received a bare minimum for subsistence. What concerned the original colonizers was not so much to conquer land, colonize it, and populate it, but to seize and subjugate native manpower—the Indian—or imported manpower—the European white and the African Negro. Manpower for mining, export agriculture, and extensive cattle raising was the highest objective. The land was not the essential thing. From this individual and group attitude on the part of the earliest conquerers resulted a whole process of historic development and an entire cultural tradition. The worker on the land made practically no progress under such a system. In that respect, it is well to listen to what the Bolivian sociologist Reyeros has to say about the native workers in the Andes: "Five centuries after the conquest and after more than a century of republican life, the Indians are in the same condition as they were in the days of Toledo [Spanish viceroy]."[6]

What the early colonizers did was to institute the system of large one-crop properties, absentee landownership, and slavery, of which the agricultural or cattle-raising plantations are the most common expression. The aboriginal population had instituted the system of community ownership of the land and of collective work which still prevails on the high Andean plateau. The more recent colonizers—European and Japanese immigrants particularly—transplanted a third system, the family farm. Within these three classic systems—the large landholding, collective labor, and family farm—there is a wide range of others, on which I shall comment below. Of the most widespread general forms of land tenure, let me mention the following: cultivation of one's own land, rental, sharecropping, homesteading, and squatting, with different mixed forms, such as colonizer-owner, tenant-owner, sharecropper-owner, and occupant-owner.

LARGE LANDHOLDINGS AND SMALL LANDHOLDINGS IN LATIN AMERICA

In order better to understand the situation of rural property in Latin America I will consider four different types:

[5]For more extensive information on this subject see *Los agricultores sin tierras en America Latina* (Ginebra, Suiza: Oficina Internacional del Trabajo, 1957), Capitulo I, pp. 1–18.

[6]Rafael A. Reyeros, *Pongueaje* (La Paz: Empresa Universal, 1949).

1. *Small* properties, made up of less than ten hectares *(minifundio).*
2. *Medium-size* properties, from ten to 99.9 hectares.
3. *Large* properties, from 100 to 999.9 hectares.
4. *Very large* properties, over 1,000 hectares *(latifundio).*

In general, upon examination of the *number* of properties in each of these four groups in relation to the respective *areas* for each group, the uneven distribution of the different types of properties will be quite evident. In other words, the predominance of the extremes will be obvious—the *minifundio* and the *latifundio*—to the detriment of the medium-size property cultivated by the rural family. Regardless of the form of tenancy, a small number of rural exploitations comprise the greatest percentage of the agricultural land, whereas a limited number of small properties make up a small percentage of the total. This is the actual result of the historical process pointed out earlier, which time is serving only to aggravate.

It was possible to obtain reliable data collected and published for the Inter-American Statistical Institute (IASI) for only seven Latin-American countries: Bolivia, Brazil, Costa Rica, Ecuador, El Salvador, Honduras, and Panama. In these countries, large landholding and small landholding are on equal plane. As a matter of fact, 3.5 per cent of all rural properties in these seven countries comprise 58.5 per cent of the total area of all the agricultural property. On the other hand, 66.6 per cent of all agricultural units cover only 9.8 per cent of the total area of all agricultural properties. The first case refers to the one-crop large landholding, semiabandoned and under the control of large business concerns or absentee landlords. In the second case we see the inverse social phenomenon of a high percentage of individual properties, small in area and poorly operated. This is the typical small landholding *(minifundio).* Between these two economic and social levels is the medium-size property, constantly and progressively being swallowed up by the two extremes. If we were to examine carefully the problem of any one of these countries we could identify more severe contrasts. In Bolivia, for example, 6.3 per cent of all agricultural properties cover 91.9 per cent of the entire agricultural area, while practically 70 per cent of all such properties comprise only 0.4 per cent of the entire area suitable for agriculture. In the countries whose classic rural economy rests on coffee (El Salvador, Honduras, and Brazil) less than 1.5 per cent of all the agricultural property covers half of all the cultivated land. By contrast, in Brazil 34.4 per cent of all agricultural properties cover only 1.3 per cent of the total area. In El Salvador, 1.2 per cent of all agricultural property comprises exactly half of the total agricultural area. In Costa Rica we find the other extreme: 44.4 per cent of its agricultural properties cover only 2.9 per cent of the area of all such property.

Here again, in this sector of the relations between man and land in Latin America, there are strong contrasts.

Table 2. Percentage of agricultural and livestock operations in relation to percentage of lands operated, according to system of land tenure*

Country	*Latifundio*		*Minifundio*	
	% of all agr. units	% of land operated	% of all agr. units	% of land operated
Bolivia	6.3	91.9	69.4	0.4
Brazil	1.6	50.9	34.4	1.3
Costa Rica	8.9	70.9	44.0	2.9
Ecuador	2.1	64.4	83.6	11.7
El Salvador	1.2	50.0	88.7	18.9
Honduras	1.8	46.3	75.0	16.1
Panama	1.5	35.5	71.7	17.4
Total	3.5	58.5	66.6	9.8

*Source: *La estructura agropecuaria de las naciones americanas* (Washington: Instituto Interamericana de Estadística, Pan-American Union, 1959).

THE PREDOMINANT CHARACTERISTICS OF TENURE IN EACH COUNTRY

Renting and sharecropping are rather universal institutions in the twenty countries. In the cattle-raising countries of the Rio de la Plata—Argentina, Uruguay, and Paraguay—these forms predominate. In Argentina, 49.6 per cent of the area under operation, covering 26.6 per cent of the exploited area, belongs to the rental system. The figures for Uruguay are, respectively, 34.6 and 32.9 per cent.[7] In the case of Argentina, the number of rented properties (191,357) is greater than the number of those operated by their owners (173,516). As the rental system is an important institution in the first two countries mentioned above, it is governed by special law.

In Colombia, the one-crop coffee economy is to a large extent supported by the rental system, since the large coffee plantation proprietor, in that country as well as in Brazil, is generally an absentee landlord. The sugar cane economy in the very rich Cauca Valley also rests fundamentally on the work of the renter. In Colombia, where only 7.5 per cent of the arable land area is effectively in use, there is a serious social problem, that of the *colono,* or squatter. Unaware and innocent, these

[7]Instituto Interamericano de Estadística, *La estructura demográfica de las naciones americanas* (Washington: Unión Panamericana, 1959), pp. 52–54.

colonos occupy land which they think belongs to nobody; they make it productive and raise its value over years of peaceful occupancy. After years have passed, the owners appear and dispossess the *colonos*.

In the case of the Caribbean countries, the tenure systems resemble each other. In Costa Rica, the most common form is sharecropping. In El Salvador, the renter lives on the coffee property of the owner. There he produces the food he needs for living, while the rent he pays for the land is not in money but in days of service. The same occurs in the case of the Honduran and Guatemalan *colono*. As for livestock, the *vaquero* (cowboy) pays for the use of the land which he cultivates by overseeing the cattle of the owner. In Mexico, the institution of land rental has undergone some slight modifications since the 1910 revolution, both the rented land and the sharecropping land being now subject to the provisions of the Civil Code. In Brazil, land tenure assumes an infinite variety of forms. Land rental and sharecropping are governed by the Civil Code. Since Brazil covers a vast area, with many varieties of tenure, I am devoting a part of this article to it separately. Chile is a country with few owners and renters, but with many wage-earning workers. Of the 550,000 "active farmers who, with their families form a total of two million people, 25 per cent are owners or renters, the rest work for wages or are sharecroppers or laborers who, through a salary or a share in the crops, or both, work directly and personally on the land for other people."[8]

FORMS AND CONDITIONS OF RENTAL AND SHARECROPPING

The forms and conditions of rentals more or less define the degree of social progress and the standard of living of the rural population. In this respect, Latin America exhibits systems characteristic of underdeveloped populations.

In countries like Boliva, Chile, Ecuador, Guatemala, Paraguay, and Peru, and in certain areas of Brazil, the relation between the landowner and his renters and sharecroppers are the same as they were in the beginnings of the colonization of these countries. There the renter receives a piece of land from the owner and cultivates it by the most rudimentary technical methods to feed himself and his family, paying for the rent of the land by working a certain number of days a week for the owner of the large property. He does not pay in money; he pays with work.

Like land rental, sharecropping is also rather widespread. Rochac defines sharecropping as "the utilization for agricultural purposes of

[8]José Ramón Astorga, "Land Tenure Problems in Chile," *Land Tenure, Proceedings of the International Conference on Land Tenure and Related Problems in World Agricuture Held at Madison, Wisconsin, 1951* (Madison: University of Wisconsin Press, 1956), p. 247.

land belonging to another and the division of the products by even parts between the owner and the farmer."[9] This system does not have uniform characteristics throughout all the countries. In some cases the sharecropper pays for the use of the land with one-half, one-third, or one-fourth of the crop, depending on the share contributed by the owner in machinery, fertilizer, work animals, seed, and feed. In others the owner, directly or through an intermediary, keeps stores where the sharecropper-cultivator buys his food at high prices.

In the special case of the indigenous population the problem has different characteristics. In the Andean countries—northern Chile, Peru, Ecuador, Bolivia, parts of Colombia and Venezuela—these groups have been subject in the course of history to discrimination and pressures. They have been forced to live apart on the high plateau in their own communities, geographically and culturally isolated, at a bare subsistence level. They are economically and socially debilitated. These areas suffer from heavy population pressures. The agricultural lands are generally poor because of their intrinsic characteristics, as well as inadequate use of farming techniques. Predominant among these indigenous groups are such characteristics as collective use of property and co-operative labor by all members of the community for the general good. In these communities the native is the prey of the dominant classes: the merchant, the soldier, the city whites. So he lives isolated in ignorance and wretchedness, illiterate, without the benefits of organized social services or of government aid programs.

AGRICULTURAL LAND IN BRAZIL

This country, which occupies almost half of South America and has a population of about sixty million, has special characteristics in relation to the problem under consideration.

According to the 1950 census, Brazil had 2,064,642 rural properties of all sizes, with a total area of 232,211,106 hectares. Of this total, 79.2 per cent of all properties and 87 per cent of its surface is land cultivated by its owners. That same year there were 186,989 agricultural properties with a total area of 13,322,689 hectares, and 9.1 per cent of these properties, with 5.7 per cent of the surface, were operated under the rental system.

The proprietor can be either a family, on a farm of diversified agriculture in southern Brazil, where large European peasant farms have been established, or the absentee owner of a large plantation growing coffee (South), sugar cane (Northeast), cocoa (East), or rubber and Brazil nuts (Amazon Valley).[10] Lynn Smith has studied this problem

[9]Alfonso Rochac, *Os problemas da terra no Brasil e na America Latina* (Rio de Janeiro: Ministério da Agricultura, 1954), p. 179.

[10]João Gonçalves de Souza, "Some Aspects of Land Tenure in Brazil," *Land Tenure, Proceedings of the International Conference on Land Tenure and Related Problems in World Agriculture Held at Madison, Wisconsin, 1951* (Madison: The University of Wisconsin Press, 1956), pp. 283–289.

in Brazil with a good deal of objectivity.[11]

For a time neither land rental nor sharecropping was extensive in Brazil, since the classic system of large landholding for production required other economic and social relations.

In the case of rentals, in 1920 the rented properties were only 23,371 in number, representing 37.4 per cent of all the establishments,[12] but in 1950 there were 186,989 rented properties, or 9.6 per cent of the total.[13]

Between the owner and the renter the contract is generally verbal. In a survey by the author in an area comprising twenty million persons in Brazil, of all the farmers questioned only one in two hundred, or 0.5 per cent, declared they had written or legalized contracts for land use.[14] And a survey of 1,492 counties (77 per cent of all in the country), sponsored by the National Commission on Agrarian Policy of Brazil and interpreted by Caldeira,[15] revealed that in only thirteen counties was a written contract customary between owner and renter. The most common form of rental in 1,250 counties was payment in money (77 per cent). In 198 counties payment was made in kind, and in 44 in mixed form (money and kind). As to duration of rental contracts, in 26 per cent of the counties they were only for one year, and in 30 per cent two years were required. Thus, for more than half of the 186,000 rented properties in Brazil in 1950, rental contracts were for less than two years. Of the production from these properties, 11.6 per cent was sold by the renter to the owner directly.

Sharecropping is found practically all over the country. Predominant are crops of short growing cycle. The share paid by the sharecropper to the owner of the land varied with the type of crop. One-half, one-third, and one-fourth are the proportions mostly in effect, chiefly the first, which is the most widespread in 77 per cent of the counties surveyed by the commission. Of all properties operated through sharecropping, in 87.1 per cent of the cases the sharecroppers paid half of their production to the owners, 10.6 per cent paid one-third, and 1.9 per cent one-fourth. As to livestock, the contract requires that of four newborn kids the *vaquero* keeps one, the other three going to the owner. "There is no legal assignment; the contract is oral."[16]

[11]T. Lynn Smith, *Brazil, People and Institutions* (Baton Rouge: Louisiana State University Press, 1956), Part V.

[12]Clovis Caldeira, *Arrendamento e parceria no Brasil* (Rio de Janeiro: Commissão Nacional de Política Agrária, 1955), p. 8.

[13]Comissão Nacional de Política Agrária, *Aspectos rurais brasileiros* (Rio de Janeiro: Ministério da Agricultura, 1955), pp. 147–167.

[14]João Gonçalves de Souza, "Aspectos da sociedade rural na area de 12 municípios sob a influência da Cachoeira de Paulo Afonso," in *Estudos da zona de influência da Cachoeira de Paulo Afonso* (Rio de Janeiro: I.B.G.E., 1953), p. 273.

[15]Clovis Caldeira, *Arrendamento e parceria no Brasil* (Rio de Janeiro: Comissão Nacional de Política Agrária, 1955), p. 273.

[16]João Gonçalves de Souza, "O Problema da Terra no Brasil," *Revista de pesquizas economico-sociais*, Año 1, Núm. 1 (1959), 125.

Table 3. Number and area of agricultural and livestock operations according to types of tenure*

Country	Ownership				Rental				Other forms			
	No. of operations	%	No. of hectares	%	No. of operations	%	No. of hectares	%	No. of operations	%	No. of hectares	%
Total	2,123,417	71.9	233,946,461	84.2	323,695	10.9	16,641,079	6.0	507,039	17.2	27,384,480	9.8
Bolivia	64,396	74.5	22,227,498	67.9	17,248	20.0	2,471,306	7.5	4,733	5.5	8,051,046	24.6
Brazil	1,636,964	79.3	202,180,545	87.1	186,989	9.0	13,322,689	5.7	240,689	11.7	16,707,872	7.2
Costa Rica	34,935	81.1	1,628,290	89.7	2,323	5.4	19,225	1.1	5,828	13.5	167,039	9.2
Ecuador	233,900	67.9	4,889,400	81.5	50,121	14.6	551,700	9.2	60,213	17.5	558,600	9.3
El Salvador	107,875	61.9	1,410,892	92.2	32,945	18.9	87,594	5.7	33,384	19.2	31,837	2.1
Honduras	33,289	21.3	1,159,668	46.2	26,088	16.7	102,395	4.1	96,758	62.0	1,245,341	49.7
Panama	12,058	14.1	450,168	38.9	7,981	9.3	86,170	7.4	65,434	76.6	622,745	53.7

*Source: *La estructura agropecuaria de las naciones americanas: análisis estadístico-censal de los resultados dotenidos bajo el programa del censo de las Américas de 1950* (IASI doc. 2778 Sp.; Washington: Instituto Interamericana de Estadística, Pan-American Union, 1957), Chart 24, pp. 48–55.

GENERAL AND FINAL OBSERVATIONS

It is obvious from the foregoing examination of the subject that land is badly distributed in Latin America as a whole. This irregular distribution, side by side with a great number of tenure systems which offer the rural worker socially unjust contracts, makes evident enough that such an agrarian structure creates obstacles to the economic and social progress of the peasant and impedes improvement of techniques of extension and agricultural production on the continent. A just reform of the present structure should by all means be an essential part of any program of economic and social development.

Throughout Latin America today there is a widespread desire to overcome the present system of large agricultural landholding and improve economic and human relations between owners and other classes of agricultural workers. In most of the twenty countries of this vast region the prevailing agrarian system is a cause of acute social tension and some political ferment. Mexico was the first to show the way, forty years ago, with the modification of its system of land tenure; but recently Bolivia, Cuba, Guatemala, and Venezuela have followed suit. And in practically every legislative assembly of the other Latin-American countries there is more than one piece of proposed legislation, seeking to correct the effects of the present agrarian situation, which it is hoped will lead to the economic, social, and political liberation of millions of peasants—illiterate, backward, and oppressed—living at subhuman levels.

The problem is very important, but it has been insufficiently studied. It deserves special attention from social scientists, public administrators, and the responsible leaders of the Latin-American countries.

J. ROBERTO MOREIRA

Rural Education and Socioeconomic Development in Brazil

This paper examines rural elementary education in Brazil in the light of historical phenomena and recent socioeconomic development. Contemporary rural society is described from the point of view of its social structure and the way in which rural educational problems emerge from this context. The paper concludes with a statement and evaluation of attempts on the part of the federal government to solve problems of elementary education in rural areas.

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FROM SEMICOLONIAL RURAL SOCIETY TO A SOCIETY IN TRANSITION

SINCE colonial times the Brazilian economy has been based mainly on the production of tropical goods and raw materials. The process of capitalization and industrialization, of which the first steps were taken at the end of the last century, was slow and met with many obstacles, especially the uncertainty of the international market for tropical products. As manufacturing did not develop until the beginning of this century, most foreign exchange credits had to be applied for the importation of consumer goods.

Because of this economic situation, the Brazilian way of life has been based predominantly upon rural activities, and this rural society could be neither rich nor bright. The manner in which Portugal settled the country during the sixteenth to the eighteenth centuries, the structure of the economy resulting from that settlement, and the related social organization precluded the development of an efficient rural technology in Brazil. The formula "latifundium + monoculture + slavery" characterized Brazilian social organization until almost 1900. Large estates, ruled by a kind of patriarchal family and worked by Negro slaves, divided the country into three classes—a small rustic aristocracy, slaves, and numerous poor landless peasants.

Agricultural technology was very primitive and, as the country was large, no care was taken to preserve the soil. No more than two generations of the same family would work the same land; they moved forward into new lands, neighboring or distant, as soon as the previous ones were exhausted. The *taperas* (country estates which have been completely abandoned and are in ruins) are today an important part of the Brazilian rural landscape. *Queimadas* (clearings of land by burning) were the first lands to be cultivated, and no fertilizers were used.

This primitive technology was so poor that when many American southerners went to Brazil after the Civil War to continue their way of living there, they discovered that Brazilian slaves raised cotton in the same way as the American Indians planted and raised corn.[1]

The 1920 census reported a labor force of almost ten million people, of whom about 80 per cent were concerned with primary production; yet only 1,706 tractors and no more than 142,000 plows were in use. The rate of productivity per rural worker was among the lowest in the world. About 80 per cent of the adult rural population was illiterate.

At that time coffee production and exportation constituted the foundation of the Brazilian economy, and only a few other extractive products could be considered as having some weight in the country's external trade. During the great world depression of the late twenties and early thirties, Brazil almost went bankrupt. From these economic difficulties arose a series of political troubles. The socioeconomic development from 1930 through 1946 was very well described by Spiegel[2] as chronic inflation and sporadic industrialization.

Industrialization was the result of the deficiency of exports. Lacking foreign exchange, Brazilians had to produce many of the needed consumer goods. However, when the international market demanded more tropical products, as it did just before the second World War, the process of industrialization declined.

Nevertheless, industrial production increased at a mean annual rate of 3.2 per cent from 1930 through 1940. Output in agriculture decreased, however. New lands were no longer available, and agricultural technology was so deficient that no modern means of soil revitalizing could maintain the fertility of the lands in use.[3] The resulting economic imbalance was responsible for a general impoverishment of the

[1]Ballard S. Dunn, *Brazil, the Home for the Southerners* (New York: G. B. Richardson, 1866), p. 138.

[2]Henry William Spiegel, *The Brazilian Economy: Chronic Inflation and Sporadic Industrialization* (Philadelphia: Blackiston, 1949).

[3]The cumulative rate of population increase was about 2.4 per cent; the industrial rate of increase was 3.2 per cent; the rate of agricultural production increase was about 1.6 per cent. Then the real increase of industrial production was 0.8 per cent and in agriculture it was −0.8 per cent (decrease); the Brazilian economy was almost stagnant from 1930 through 1940.

common people. Landless peasants and owners of small despoiled rural properties emigrated to towns looking for jobs and better living conditions, but the urban labor market was unable to make jobs available to these unskilled migrants. The result was the appearance of *favelas, malocas,* and *mocambos* (different kinds of small, unsanitary wooden cabins without water supply) on the borders of the towns and cities as homes of a marginal population.

After World War II many factors–among them, we must emphasize, the training of a large group of Brazilians in the United States in the fields of economics, political science, education, and the social sciences—contributed to set up short- and long-run programs for socio-economic development, both with private and government participation. From 1948 through 1957 the national gross product increased at an annual rate of about 5.5 per cent. Special policies were adopted to attract foreign investments and to diversify exportable products in order to obtain more foreign credits. Foreign investments during these ten years increased to about $5 billion, two-thirds of which were made by American investors. This program is being retarded, however, by the world overproduction of coffee, for coffee represents almost half of Brizilian exports.[4] In 1957 the exports amounted to about $1.5 billion and imports to about $1.6 billion; the gross national product was $16 billion.

THE PROBLEMS OF RURAL BRAZIL

Though Brazil is not yet a developed country, it is far ahead of its 1920 position. Per capita income has increased from less than $100 per year to about $260. A system of roads and railways has been developed, health conditions have been greatly improved, and educational opportunities have increased very rapidly. Nevertheless, the rural areas of Brazil, from which 60 per cent of a population of more than sixty million draw their means of living, are still far from prosperous.

To understand this situation we must consider the rural division of properties, the rural labor force, technology, and the social status system. All of these show traces of the ancient latifundium + monoculture + slavery organization. Though there is no more slavery in Brazil, farm labor remuneration is low, and the social and job controls are such that in most of the interior areas the farms and plantations retain many features of the semifeudal and patriarchal colonial organization. But this is not as bad as it appears, because it is not too difficult to improve technology on large rural properties; as a matter of fact, rural economic improvement has begun. From 1950 on, the agricultural rate of real production exceeded the rate of population increase: 3.5

[4]In 1957, 29.4 per cent of Brazilian exports were raw materials; 43.5 per cent, coffee; 25.5 per cent, foods and drinks; 0.7 per cent, chemical and pharmaceutical products; 0.1 per cent, machinery and vehicles; 0.4 per cent manufactured goods; and 0.3 per cent, gold and money. 40.1 per cent of the exports were to the United States.

per cent against 2.4 per cent per year, which means a real increase of 1.1 per cent. But during the same period the real rate of industrial production increase was about 9.5 per cent per year, an indication of the unbalanced development of the Brazilian economy.[5]

The main problem of rural production in Brazil lies in the division of land. This division moves in two antagonistic directions: toward the large estate (latifundium), and toward the very small property (minifundium). Large estates are favored by many factors: capitalization and financial resources to increase holdings, nonlegal ways of obtaining land and court tricks to legalize the situation, misuse of temporary political power to get financial support for enlarged rural estates, and so forth. Small properties result from Brazilian legislation on patrimony; there being no birthright or primogeniture, at every new generation the estates are divided and redivided, if not sold, in order to permit a better partition and to pay the expenses of public inheritance transmission.

In 1920, rural estates smaller than 250 acres numbered 464,000; in 1940 there were 656,000 estates of less than 25 acres, and 975,000 with more than 25 acres and less than 250 acres. There was also an increase of large estates; the number of those ranging from 2,500 to more than 25,000 acres in 1940 was more than 27,000. In 1950 the number of small estates (less than 25 acres) increased to 711,000; those ranging from more than 25 to less than 250 acres numbered 1.1 million, and the largest estates (between 2,500 and 30,000 acres) increased to a total of 33,000. The total area of the rural estates increased from 430 million acres in 1920 to 495 million in 1940 and 580 million in 1950.

The owners of large estates find no great difficulty in improving production because they can obtain loans from official and private banks. Especially in the south and southeast parts of the country such improvement occurred after 1946. In 1940 the total number of tractors for agricultural activities in Brazil was less than 4,000; in 1950 they numbered 8,400, and in 1958 more than 30,000. The number of plows increased from about 500,000 in 1940 to about 1.9 million in 1958. Brazilian production of fertilizers was negligible in 1950, but rose to 14,000 tons in 1956; about 290,000 tons were imported in the same year.

Operators of the smaller properties, on the other hand, do not have the financial resources to buy the tools and other materials needed for better exploitation of their land. They do not have the requisite knowledge to develop co-operative organizations. A national technological and ideological base for the progress of small farmers in Brazil is lacking.

In 1950 the labor force in agriculture comprised about eleven million

[5]Source for these and other economic data: *Conjuntura economica*, Nos. 9, 10, 11, 1958, and Nos. 1, 2, 3, 1959; a monthly digest of Brazilian finances and economy issued by the Getulio Vargas Foundation, Rio de Janeiro. There is also an English-language edition of this magazine issued by the same foundation.

workers (65 per cent of the total labor force of the country), of whom 55 per cent were owners and 45 per cent landless peasants. A landless peasant or a small holder in Brazil is often an illiterate, unskilled person who can obtain only a minimum income for survival. Landless peasants live in mud huts of one or two rooms, without piped water supply, water closets, or any equipment other than rude beds, footstools, some vessels of earthenware, and such tools as a hoe, an ax, and a *facão* (a long wide knife). They may have some furrows of black beans, corn, and cabbage near the hut, and also a few pigs, one or two cows, and a few chickens which forage for themselves. The land on which the huts are constructed does not belong to the family. The owners permit the families to live on the land; in return the peasants work for the landlord during planting and harvest periods. Most of the peasants are sharecroppers, and about 40 per cent work for small wages.

In 1957 the mean annual salary for a rural worker or sharecropper in Brazil was no more than 6,640 *cruzeiros*, which in purchasing power is equivalent to no more than $250 in the rural areas of the United States. But the peasants have to buy only a few things because they may get most of their subsistence from the land on which they are permitted to live. No money is needed for the children's education or for health. When there is an elementary school nearby they send the children to attend the lessons, and all the pencils, notebooks and books must be furnished by the school. When possible, the school also gives the children some light lunch and some health care (mainly vermifuges and tonic medicines). For health treatment the Brazilian backwoodsmen use nonscientific medical personnel.

The family organization of these landless peasants is generally based on common-law marriage. Frequently, family organization is reinforced by legal marriage when a Catholic priest or missionary pays a visit to the area and persuades some peasants to accept the sacrament that since 1946 has been civilly recognized in Brazil. Marriage between relatives is very common because of the distance between settlements and the resulting isolation. The peasants organize themselves into large extended families with reciprocal aid and solidarity. It is very common also to reinforce the kinship linkage by means of godparenthood. But godparenthood is used also as a political device, being a means of linkage between rural political bosses and peasants. Through this linkage the bosses win a voting power, and the peasants believe that they have been assured protection and help from a powerful and influential leader.

Landless peasants in 1950 made up a labor force of five million workers (four million males and one million females) who provided support for at least ten million more children, wives, godchildren, and relatives. These fifteen million persons living in very low socioeconomic and cultural conditions represent the great challenge to Brazilian

socioeconomic development because they comprise more than 29 per cent of the Brazilian population. Many of them, when it is possible to get some extra money, try to emigrate to cities and towns. There they will not attain even a proletarian status, but they can find unskilled and underpaid jobs, and the goverment has to give them some social and health assistance. As Andrew Pearse pointed out, they have in the *favelas, mocambos,* and *malocas* more social security and more possibilities for living than in the backward, underdeveloped areas, and this in spite of having a marginal position in the urban society.[6]

The second group of poor peasants is composed of the owners of very small properties (less than 25 acres). Supposing that each belonged to a different family, we would have no less than three million persons supported by that kind of rural property.[7] These peasants cannot produce any more than the landless ones; they can raise some crops, pigs, and chickens for their own consumption, but they have to work on some big farm for money to buy what they do not produce. Consequently, the only difference between them and the landless peasants is that they can sell out the small land they have in order to procure money with which to emigrate to urban areas.

The third group is more resistant to migration; they are owners of small and middle-sized rural estates ranging from 25 to 2,500 acres of land. They are able to make some money by selling part of their produce, and they strive to continue as rural landowners. The mean net income per family in this group ranges from about $300 per year to about $5,000. With their families, they make up a group of more than 3.9 million persons (in 1950 about 7.5 per cent of the Brazilian population). Together with the group of skilled rural workers (tractor drivers, managers, experts in agriculture or cattle raising, and so forth) who have jobs on the big farms, they form the upper-lower class and the middle class of rural Brazil. This group of small and middle landowners are the most responsive to adult education and community development programs.

THE PROBLEM OF EDUCATION FOR RURAL AREAS

After 1930 many attempts were made to provide rural people with at least a part of the educational facilities allotted to urban areas. Because of the demographic condition of rural areas the kind of elementary school organized was the one-room and one-teacher school. In Brazil rural villages or hamlets are not common because of the nature of the rural technology and because of the economic fact that

[6]Andrew Pearse, "Integracão social das familias de Favelados," *Educacão e ciências sociais* (Centro Brasileiro de Pesquisas Educacionais, Rio de Janeiro), II (Nov., 1957), 245–278.

[7]This supposition is based on the fact that in 1950, out of a total population of 52 million, 17 million were economically active.

peasants need to have at hand some domestic animals, some vegetables, and some crops for immediate home consumption. Brazilian villages and towns are inhabited by people who live from commercial and handicraft activities. A village or a so-called rural town is generally a market place for agricultural products and a place where manufactured and other goods which rural people need are sold.

In principle, the one-room school presupposes a very good teacher because it assembles in the same class children of different ages, skills, and aptitudes. A good teacher is the result of culture and training; that is, he must be a highly educated person with capacity and social abilities for heterogeneous class management. Nobody with such qualifications in Brazil needs to apply for a teaching position in the uncomfortable and poor rural areas; such teachers can have good jobs in towns and cities. Consequently the rural teacher in Brazil is a person, generally a woman, who can scarcely read or write and who has had no pedagogic training.

In 1957 out of a total enrollment of about 5,900,000 pupils in elementary schools, only 2,109,000 were from rural families. As the estimated rural population of elementary school age was about 4,962,000 by that time, we can say that 2,853,000 rural children who should have been enrolled were not attending any school.

And this is not all. Because of the poor organization and teaching in rural schools, and because the school has no great meaning in the rural milieu, nonattendance and dropping out are quite frequent.[8] About 56.4 per cent of the rural pupils stay at school less than one and one-half school years; 12.6 per cent stay for two years, and 10.3 per cent for three years; only 18.7 per cent of them stay long enough to learn some basic writing, reading, and reckoning.

If the above is the situation as regards elementary schools, the condition of rural secondary schools is worse. The existing secondary schools are urban and academic. The federal government has been trying since 1940 to organize a system of technical secondary schools for agricultural teaching. In 1957 there were thirty-five such schools supported by federal funds and fourteen supported by state funds. Their capacity was about 20,000 pupils, but no more than 4,370 were effectively enrolled. These schools appeal only to the interests of a few upper-lower-class and lower-middle-class people in the rural districts who look for employment as agricultural experts on the big modernized farms. Consequently these schools do not contribute to improving the technology of the middle and small tenants.

The educational, socioeconomic, and cultural situation in rural Brazil is not only a crucial challenge to the country's development; it also retards Brazilian industrialization, which depends upon an

[8]See the author's report on Brazil in *World Survey of Education*, Vol. II, *Primary Education* (New York: UNESCO, 1958).

expanding purchasing power by the great majority of the active population–that is, the rural people.

The data on improvement of agricultural productivity in Brazil are mainly indicative of the situation on the large farms, as we have said. But this improvement, if translated in terms of productivity per capita or per worker, may lead to misinterpretation. For instance, the Economic Commission for Latin America's Study of Agricultural Productivity found out that between 1945 and 1955 the Brazilian agricultural worker's productivity increased by about 39 per cent, but this is the result of improved production in big farms.[9]

According to Jacques Lambert, there are two different and contradictory Brazils. Both in the backlands and in the urban areas there is prosperity and also misery. Sometimes a rich, new, modern region contrasts with a neighboring poor, archaic, and decadent one. It is as if Brazil were living in two different ages of the same civilization: the medieval and the modern.[10]

THE ATTEMPTS TO MEET THE PROBLEMS

In a new country, when the awareness of underdevelopment becomes critical and painful, and there is no previous experience to serve as a basis for meeting the situation, many possible solutions can be suggested and tried out. Since 1930 this has happened in Brazil. The national Ministry of Education and the State Departments of Education have shown unrest and anxiety. Numerous experiments have been tried, but the results have not been satisfactory.

We will report only the main projects of the federal government designed to help the states solve the problem of elementary education in rural areas.

In 1946, in accordance with a constitutional provision creating a National fund for Elementary Education to supplement state and municipal funds for the enlargement and improvement of elementary schools, a plan was set up to apply the resources of the National Fund according to regional needs.[11] From the total amount collected every year, 70 per cent would be applied to construct new school buildings, 5 per cent to improve teacher-training programs, and 25 per cent to create and maintain special schools for illiterate adolescents and for adult education.

From 1946 through 1958 more than 15,000 new school buildings were constructed and thousands of teachers were trained with federal help. About two million adolescents and adults learned to read and

[9] *Survey of the Brazilian Economy* (Washington: Brazilian Embassy, 1958), p. 12.

[10] Jacques Lambert, *Le Brésil, structure sociale et institutions politiques* (Paris: Colin, 1953), pp. 64–65.

[11] The National Fund resources are the result of a special documentary stamp tax of about three cents plus a percentage of the taxes on liquors.

write in the night elementary schools that were created for this purpose. Nevertheless, most of the benefits of such a plan fell to the urban areas; urbanization is so rapid that all towns must educate innumerable migrants from rural areas. Even in Rio de Janeiro and in São Paulo, the two richest industrial cities of Brazil, the shortage of elementary schools remains a major problem.

In 1940 enrollments in elementary schools totaled about 7.3 per cent of the Brazilian population (2,900,000 pupils), and in 1957 that percentage rose to ten (almost 6,000,000 pupils); clearly there has been a major effort to educate Brazilian children. Nevertheless, no less than 2,800,000 children of school age remain without schools, and the great majority of these children live in rural areas. In 1958 the proportion of illiterate persons aged ten or over was estimated to be about 42 per cent. This failure to eradicate illiteracy promptly has given rise to sharp criticism of the government; Brazilians do not like to be considered a retarded nation.

After President Juscelino K. de Oliveira's inauguration in January, 1956, he asked the Ministry of Education to set up an intensive program to eradicate illiteracy. A committee was appointed and the present writer was made chairman and reporter of the studies and discussions. After a few months a project was prepared, but the committee expressed doubts as to its success on the grounds that the social and economic causes of illiteracy could not be removed by educational procedures.

In 1957, as co-director of the Brazilian Center for Educational Research, the author and a group of young educators and social scientists reached the conclusion that an experiment of extensive and complete education for a limited area could provide the basis for an exact evaluation of the possibility of eradicating illiteracy. Based on data already existent and on well-grounded assumptions, their proposal to the Ministry of Education and Culture was to set up demonstration areas in which complete fundamental education might be expected to bring about eradication of illiteracy. These pilot projects would provide estimates of costs and help to evaluate the methods and techniques for a nation-wide campaign.

The proposed project was inaugurated in January, 1958. At the beginning three limited areas were selected: Leopoldina in the State of Minas Gerais (eastern Brazil), Timbaúba in the State of Pernambuco (northeastern), and Catalão in the State of Goiás (western-central). Each area has a municipal seat-town and a corresponding rural district. The three areas had about the same population, but differently distributed into rural, urban, and rurban population. Leopoldina is more industrialized and its rural areas are more developed. Timbaúba has a very large poor urban area, a sizable marginal population, and the beginnings of industrialization; its rural area has many sugar cane plantations. Catalão is more agricultural, being the town-seat and

mainly a small market place; but its outlook seems to be excellent because it is not far from Brasília, the future capital of Brazil, now being constructed.

The project is being carried on according to the following steps.

1. A rapid and complete survey of the area, with emphasis on economic activities, labor possibilities and trends, social structure and stratification, cultural patterns, and educational availabilities in order to evaluate the favorable and unfavorable conditions.

2. Social services to get the assent and support of the local people, to make them accept responsibilities, and to leave them some choices and decisions in regard to the proposed plans.

3. Establishment of the main lines of the project according to the opinions and choices of local people.

4. Continued objective checks on the experiment as a means to evaluate processes and results, correct mistakes, readjust methods, and forecast further consequences.

From the first reports we have reached the conclusion that in all three areas we have to provide the following.

1. Enlargment and expansion of the existent elementary school system in order to enroll all the population from seven to twelve years of age in an elementary school of five grades and to provide emergency classrooms and emergency education for people over twelve and younger than sixteen who have had no opportunity to attend school.

2. To organize the elementary schools in such a way that all pupils, even the most retarded ones, will progress from grade to grade without the repeating that has been so common in Brazil.

3. To reconstruct the elementary school curriculum in terms of local conditions and possibilities, replacing abstract teaching methods with a more concrete set of activities incorporating local facts and local meanings.

4. To provide complementary prevocational schools both in rural and urban areas.

5. To change, as far as possible, the rural schools into small social centers, where not only children but all local people will have a place for meetings to study and discuss their problems.

6. To organize a system of basic education capable of leading the rural people to accept and practice more productive agricultural and cattle-raising activities.

7. To provide places and means for training rural teachers selected from the rural population, and to equip them with knowledge and skills to lead rural people toward improved health and work conditions, and give them instruction in home economics.

8. To co-operate as far as possible with rural organizations and to seek technical assistance from the Ministry of Agriculture in the program of basic education.

9. Wherever possible to organize special classes for illiterate adults and to search for appropriate teaching methods.

10. To make full use of parent-teacher associations, clubs, recreational organizations, and citizenship education programs.

Those ten main recommendations of the project are being put into practical action, and each of them is stumbling upon specific local difficulties such as the socioeconomic conditions which we have described in the two first parts of this article. But one certainty we have already acquired: the rural common people can be easily awakened to the benefits of education, and they can do more for their own education than the socioeconomic conditions lead us to suppose. Reports from the experts in the field in the three areas emphasize the impatience of the local people for achievement of all the parts of the program.

Then we may say that it is possible to educate and improve the culture of rural people; it is possible to create a local awareness of educational needs and to lead local people to care about education and help in realizing educational projects as well as making choices and decisions. It is possible to train local young people for elementary teaching positions and to equip them with better techniques than teachers in many urban areas possess, because of their closer acquaintance with local needs and problems.

A major reservation concerns the results of such a program for improving rural life conditions. It is very probable that the people we are educating will not remain in their present areas: education will enable them to move to urban areas. The great number of landless underpaid peasants and poor owners of very small rural properties will not be able to improve their incomes by continuing to live in rural areas.

Hence we look toward a program that was set up by the Banco do Nordeste in co-operation with the United Nations Food and Agriculture Organization.[12] It is a kind of supervised loan and socioeconomic service to middle and small landowners in the rural areas of the northeastern region. This program is very well known today by the initials of the resulting operation: ANCAR, or Associacão Nordestina de Crëdito e Assistência Rural (Northeastern Association for Rural Loans and Social Services). The program is not entirely Brazilian; in many other countries somewhat similar projects are being carried on. The Brazilian novelty was the use of pilot projects before launching a full-scale program. In this way it was possible to adapt foreign experience to Brazilian conditions and potentialities. From the first efforts it was possible to elaborate techniques and socioeconomic methods for improving productivity on small farms. In a

[12]An official bank created by the federal government to finance the improvement of economic activities in the northeastern part of the country.

very general way we may outline the process in the following steps: (1) approach the landowner's family and get their own feelings and criticism of their living situation; (2) let them know the fundamental causes of that situation; (3) lead them to the conclusion that with some help they can improve the situation by themselves; (4) offer a reasonable bank loan which will be controlled according to the program to be set up for the particular farm; (5) study the soil and the economic possibilities of the farm and organize a specific program; (6) put the program into action and give all the needed technical assistance in order to make it successful; and (7) give to the peasant's family available social services in order to teach them to improve home conditions and follow better home economics practices. All the services are given completely free of charge, and the loan as well as the interest is to be paid back according to the net resulting productivity of the land. To meet the expenses for technical assistance and social services, the association relies partly on small contributions from the benefited landowners, but mainly on federal and state subsidies. The bank also contributes a subsidy that is a part of the interest payments.

After two years of succesful experiments and program readjustments, ANCAR began to organize the benefited landowners into production co-operatives, thereby helping them to obtain more substantial loans with which to buy modern agricultural machinery, fertilizers, selected seeds, and so forth.

This successful program is being enlarged and expanded all over the Northeast with due care to avoid any deterioration of methods, undesirable political implications, or attempts to misuse resources. A predominantly educational program of rural self-development—a long-term process of teaching, guiding, and counseling—cannot, in any event, be regarded in terms of rapid expansion.

Because of the good results already obtained, associations like ANCAR are being created in other Brazilian regions, with official support and subsidies. All of them are denominated by initials ending in "CAR," meaning literally "Rural Credit and Assistance," but also having the broader meaning "Rural Social Services, Technical Assistance, and Loans." In Rio de Janeiro the ABCAR, a national agency of the system, was organized.

In spite of their promising success, the "CAR" organizations are not the complete solution for low Brazilian rural productivity. They are merely a means of partial improvement that can be completed only if some reasonable and well-based agrarian reforms are brought about in the near future.

There is a great movement in Brazil in favor of agrarian reform and the matter is being subjected to discussion and debate in the federal congress. Brazilians are optimistic about such reforms because they realize that of the 600 million acres of private lands, only 200 million

are under true cultivation or pasture. Only 70 million acres are regarded as not suitable for production. About 330 million acres are under private ownership but are not being utilized. The new west-central regions are now being reached by railroads and new improved roads which will make possible the exploitation of about 200 million acres of new land in this region. From eight to twelve million peasants could have sufficient land (330 million + 200 million acres) to cultivate if properly assisted financially, technically, and socially.

For this purpose ANCAR's experience could be a great help as an adequate program, having only to be adjusted to the different ecological areas of Brazil; but to expand such a program, the financial aspect cannot be forgotten. Has Brazil sufficient financial resources to do that at once?

The conclusion that we may draw from this report, insofar as we consider the actual Brazilian conditions, is that education alone is not capable of improving the rural conditions of life. Perhaps what is needed mainly is a means of better urbanization. Allied to an educational program must be improved organization of rural production, new sources of financial credit, better distribution of available lands, and programs for rural social services.

The basic experiments to eradicate illiteracy which we are carrying on can have major rural results if they have the support of these other plans.

MANUEL ALERS-MONTALVO

Social Systems Analysis of Supervised Agricultural Credit in an Andean Community

Directed social and cultural change in which a systemic conceptual scheme is utilized in the analysis is the theme of this paper, which describes the first year's operation of a project in supervised agricultural credit in a Peruvian highland community and analyzes it in terms of the dynamic aspects of systemic elements such as goals, norms, sanctions, power, and so forth. The conclusion to the paper summarizes an explanation of the events occurring during the year.

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THIS is a study of directed social and cultural change.[1] It is concerned with the first year (1953–1954) of operation of a project in supervised agricultural credit which for the past six years has been functioning in a highland community of Peru. Two outside agencies, the Extension Service and the Peruvian Agricultural Development Bank, are promoting this enterprise. The Extension Service is manifestly an educational agency, the bank a "production" agency.

The "experiment" takes place in the community of Pucará, within the Mantaro Valley of the Central Andean region. This valley is approximately forty-five miles long and varies in width from three to nine miles. It is at an altitude of approximately 11,000 feet. Quite a large number of population centers dot the valley.

Minifundia are a dominant feature of land tenure in the valley. Each individual property is further fragmentized. Each *Comunidad de*

[1]M. Alers-Montalvo, "Cultural Change in a Costa Rican Village," *Human Organization*, XV (Winter, 1957), 2–7.

Indigenas[2] as such possesses land, which in practice is also fragmentized; it is leased to villagers for individual exploitation. Barley, potatoes, corn, and wheat are the most important crops of the area, and are marketed in Lima, 195 miles away.

The project reported herein was conceived by the change agencies as an attempt to consolidate fragmentized communal lands, to permit them to be operated more efficiently. New agricultural and farm management practices would be introduced through the Agricultural Extension Service; the bank would provide the needed capital. The project would serve as a "demonstration" of what can be accomplished in the valley by using available local resources.

The Mantaro Valley has been considered by many Peruvians to be the most progressive highland region of the country. Within the valley two communities have been especially singled out as most progressive —Muquiyauyo at the northeast, and Pucará at the other end.[3] The present study is one aspect of a larger study of Pucará which the author is in the process of writing.[4]

GENERAL DESCRIPTION OF THE AREA

Pucará is a settlement of the village type, of approximately 400 families. It is nine miles from Huancayo, the departmental capital, and is connected with it by an unpaved road.[5] Huancayo, in turn, is connected with Lima, 195 miles away, by railroad and by a partially paved road.

The population of Pucará has been classified as 87 per cent Indian and 13 per cent mestizo-white.[6] The community is bilingual, but the native language, Quechua, is used preferentially in over 50 per cent of the households. It is a "young" population, with about 70 per cent in the ages below thirty. Almost 90 per cent of the male heads of family were born in the village. The population has been quite mobile in the

[2]A legal term for communities with sizable Indian population groups and with special privileges such as the nonpayment of certain taxes, inalienability of communal lands, and so forth.

[3]See Harry Tschopick, *Highland Communities of Central Peru* (Institute of Social Anthropology Pub. No. 5, Washington, 1947); also Richard N. Adams, "Personnel in Culture Change: A Test of a Hypothesis," *Social Forces*, XXX (Dec., 1951), 185–189; "A Change from Caste to Class in a Peruvian Sierra Town," *Social Forces*, XXXI (March, 1953), 238–244; and "A Study of Labor Preference in Peru," *Human Organization*, X (Fall, 1951), 37–38.

[4]The author studied Pucará for about eighteen months, six of which were spent actually living in the village. The study was under the auspices of the Inter-American Institute of Agricultural Sciences, Andean Zone, Project 39 of the Technical Co-operation Program of the Organization of American States and the John Hay Whitney Foundation.

[5]Politically, the nation is divided into departments, provinces, districts, and *anexos* or neighborhoods. Huancayo, having an urban population 26,729 in 1940, is also the capital of the province of the same name.

[6]National Population Census, 1940.

past, however; almost 90 per cent of the male heads of family have visited Lima, particularly as agricultural laborers on the coastal haciendas. The literacy rate, especially among males, is relatively high, with 81 per cent of the male heads of families claiming to know how to read and write.

Pucará is an agricultural village, in which 77 per cent of the heads of family depend directly on agriculture for a living. Of this group 90 per cent owns land. About 65 per cent of those who own land possess less than five acres. This land is in turn subdivided into several lots located in different parts of the village. Very few of those who own land (not over 7 per cent) possess more than fifteen acres.

The use of irrigation for certain lands makes it possible to cultivate vegetables, which constitute the main year-round source of income. These are marketed in Huancayo and Lima. Potatoes, wheat, barley, corn, and green peas, among others, are cultivated on the nonirrigated lands by practically all farmers.

September through December are months of intense agricultural activity in connection with the planting and cultivation of potatoes, wheat, and so forth. April to June are harvest months for these crops. However, because of the vegetable crops, the families are busy in agricultural activities all year round.

The family works as a unit on the farm. In times of intense agricultural activity, the households are practically emptied, as everyone goes to the field. Also, at these times more use is made of co-operative labor: a villager will work on someone else's land in the expectation that his labor will be repaid in the same amount of time when he needs help. There is hardly any systematic record keeping of farm activities.

The village owns communally about seventy acres of nonirrigated cropland, most of it located on the outskirts of the settlement but some on the adjoining hilly part of the village; it also owns some 7,000 acres of grazing lands. The cropland belonged to the Church until 1941. At that time, after an open conflict with the Church, the cropland became communal property. Prior to 1941, it was rented to a few individuals, who were obligated to sponsor a big religious festival annually. After 1941 and until 1953—one of the years covered by this report—it was rented to large numbers of villagers, as many as one hundred, and was operated on an individual basis, similar to the way private lands are exploited. Communal lands cannot be sold nor mortgaged; by law they are inalienable.

As has been implied, agriculture is undertaken with marketing possibilities in mind; it is primarily of the commercial type. Money is highly valued.

Cropland, being scarce, is also highly valued by the villagers. Any situation which appears to lead to a loss of rights on land, individual or communal, leads to a great display of emotion. "Co-operation" in

matters related to agriculture and to other local activities is also highly valued by villagers. It is not the "rational" type of co-operation but rather the culturally-prescribed kind.

Pucará is the political seat of the larger Pucará district which includes several villages. It has a politically appointed mayor, a municipal council, a "governor," two judges, and a *guardia civil* post; all exercise authority over the entire district. There is an influential, popularly elected *personero*, who serves as a link between the community and the national Ministry of Labor and Indigenous Affairs.[7]

Pucará also has its own "communal" authorities. The village is divided into five neighborhoods, each with its own local board. A delegate from each board and a popularly elected "President of the Community" make up the Communal Junta or Board which also has "authority" within the village.

In terms of prestige there are two distinct classes: the upper, popularly called *los visibles* or *los notables*, and the lower, or *indígenas*. The *visibles* class is composed of people who take an active interest in community affairs and quite frequently gravitate to positions of authority. They are the most "westernized" elements of the community. At the other extreme is found the least "westernized" stratum of the population. In between these classes is a large group with varying degrees of acculturation.

The influence of the Church in local affairs is small. There is a Catholic church in the village, but no resident priest. Masses are held on certain special occasions, rather than on a weekly basis, and attendance is almost always minimal.

There are separate schools for boys and girls. Formal education is provided up to the fifth grade. The boys' school had three hundred pupils, with a staff of eleven teachers, and was under the direction of a dynamic, community-oriented principal. Several acres of community cropland had been ceded to the school and were under cultivation, for commercial purposes, that is, for the market. This land was also used as a training area in connection with courses in vocational agriculture.

Two outside agencies with which the villagers come into close contact are the local branch of the Banco de Fomento Agropecuario del Perú (Agricultural Development Bank), and the local agency of the Servicio de Extensión Agrícola del Perú. At the time of this study the extension agency, which is located in Huancayo, had three technicians in its agricultural section: the agent and two assistants. The agency has been serving this area since about 1943 when the Agricultural Extension Service was organized. The local branch of the Agricultural Development Bank is also in Huancayo and has been serving the area for a long time.

[7]Legally recognized *Comunidades de Indígenas* appoint a *personero* whose main duty is to see to it that the rights and privileges of the community are upheld.

A SUPERVISED CREDIT PROJECT

It is difficult to trace the original idea of the supervised credit project to any single source. The extension agency conceived it to be its idea; so did the bank.[8] A similar claim was made by the *personero* of the community. Actually, the three parties concerned were so much involved in the situation that it hardly seems meaningful to assign a major responsibility to any one person or agency.

As envisioned, the project aimed at the consolidation of communal croplands for their operation as a unit. The bank furnished the needed capital and the extension agency the technical advice.

Since communal lands could not be mortgaged, a way had to be found whereby the bank could furnish the credit and at the same time get the required loan guarantee. It was decided to organize a cooperative which would lease the community lands. This organization was later called a *sociedad*. The *sociedad* would in turn get a loan from the bank. The individual properties of the members would serve to guarantee the loan, which would be a three-year one. If at the end of the first year, for reasons beyond the villagers' control, the loan could not be paid, the bank would renew it. However, in the case of mismanagement, villagers would be compelled to pay. There were high expectations for the project, and its sponsors presented the villagers with a picture which stressed high monetary gains.

The *personero* undertook the task of organizing the society and of working out details in relation to the lease of communal lands. His original plan was to select two influential persons from each of the five neighborhoods or *barrios*. Each *barrio* would be assigned certain sections of the cultivated lands so that the people would have an incentive to go out and work, for pay, in the fields. For the use of the land, the community would be paid in cash an amount equivalent to 20 per cent of the anticipated profits.

The *personero* tried to convince the local political authorities of the project's value to the community, and succeeded at least partially. At any rate, he did not antagonize them. He did not, however, have much success in getting the two highly influential members from each *barrio* to join the *sociedad*. Others accepted verbally but failed to sign up when required to do so. Others signed, but were rejected by the bank as being bad risks. One of those who was rejected was a highly influential local leader.

Town meetings were called, and communal gatherings were taken advantage of, to explain the project to villagers at large and to win them over to the *sociedad*, but apathy and opposition were common

[8]One of the two highest ranking bank officials in Huancayo—with a rank equivalent to "technical" manager as against the other as "administrative" manager—who himself had been connected previously with the Extension Service, took a personal interest in the development of the project.

reactions. Rumors spread that communal lands would be lost and that a "hacienda" would be formed, endangering small properties. All this opposition was disregarded, and plans went ahead for the lease of approximately fifty acres of community land which would be used in the raising of potatoes. This land had previously been under cultivation by some 100 families, whose leases were not renewed. A loan was assumed to be forthcoming, and plans were devised to begin the technical phases of the project: the buying of seed, plowing of the soil, and so forth. However, difficulty was still being encountered in organizing the *sociedad*. Since the rains were coming, the extension agency deemed it necessary to begin preparing the soils for cultivation. Farm machinery was brought in at this time.

In the meantime, a conflict with the school authorities arose. Land which the school had been using was plowed, under the assumption that the school would accept in return an equivalent amount of land somewhere else in the village. A complaint to the authorities in Lima was followed by an order to the departmental authorities in Huancayo, and this land was returned to the school. Friction continued, however, and led eventually to the one-day detention of the school director at Huancayo police headquarters.

Finally a *sociedad* of ten persons was formed, the Sociedad Agrícola Pucarina (SAP). The *personero* was appointed president; other members were appointed secretary and treasurer, and the remainder as *vocales*. The extension agent verbally assigned responsibilities to each member: supervision over the use of insecticides, of fertilizers, farm machinery, labor, and so forth. Over the protest of both the SAP members and the extension agency, the bank appointed an outsider as administrator for the project, who was to be paid from SAP funds. Many of his assigned responsibilities were a duplication of responsibilities already assigned to SAP members. He was to live in the village and presumably educate SAP members into the intricacies of "big business."[9] Since some financial commitments had already been made, and the loan was still unavailable, the extension agent had no alternative but to accept the administrator. At the request of the bank, SAP members authorized the extension agent to manage fully some financial affairs of the project, such as purchase of equipment and materials and disbursement of funds. On labor matters the extension agent was guided by the payroll forms prepared by the administrator.

Initial difficulties were encountered in recruiting labor for the *siembra*, which at times demanded from sixty to as many as three hundred workers. Since opposition to SAP had developed among many villagers, the difficulty in getting peons was blamed on the presumed

[9]This was not usual bank procedure, but then this was a new type of situation for the bank. The bank official, personally, had high expectations about the results of the project, in terms of "educating" villagers.

leaders of the opposition. The representative of the bank personally complained to the political authorities. A few of the so-called leaders were detained at the *guardia civil* post, and an order went out from the governor requiring people from adjoining villages to come and work for pay in the project. In later stages of the project, villagers, both individually and collectively by *barrios*, came to work for SAP.

A deep conflict developed between the administrator and SAP members. It was generally argued by the latter that he exercised a strict monopoly on activities and provided them with no opportunities for learning new management practices. In other words, they could not carry out assigned responsibilities. This was aggravated by several factors. Since the administrator had worked primarily in connection with cotton, on coastal haciendas, SAP members did not consider him competent enough for work with potato-growing. Also, his violent temperament and his bank-orientation (in the sense that he claimed to be a bank employee) further alienated him from SAP members. After six months on the job the administrator left, with a charge of homicide hanging over him. SAP members were then expected to perform the responsibilities which had been originally assigned to them.

With the departure of the administrator, things were done as expected, but the degree of operational efficiency was very low. Some SAP members absented themselves from Pucará and went to Lima on personal business. Others reacted with the attitude, "If John Doe doesn't want to do this, why should I?" Many "wanted to be leaders" of all activities. Of course, some took it seriously and worked hard. In these periods of intense activity, the extension agency provided almost continual assistance in the management aspects of the project. The crop was good; the production per acre was about double the national average. Prices were rather low, but not so low as to lead to economic disaster.

Practically all the first- and second-grade potatoes were sold to buyers who came directly to the field. No buyers came for third-grade potatoes and it was proposed and verbally agreed that they be distributed equally among SAP members. If SAP were short of funds to repay the loan, each shareholder would return the potatoes or their cash value. It is claimed that the harvest was not too efficient, and that villagers would still dig potatoes for their own use from fields which presumably had already been harvested.

When the harvest had been sold, and seed stored for the following year, it was discovered that SAP was still short of about one-eighth the total sum needed to repay the loan.

In the meantime, the bank official closely associated with the project was removed. A new manager was appointed,[10] who insisted on adher-

[10]The other high-ranking bank official, previously mentioned (footnote 8) was promoted to the position of over-all manager.

ing strictly to what he considered bank rules and required that SAP repay the total amount of the loan within the specified time. Although practically all shareholders simultaneously visited the bank to intercede personally with the new manager, his final decision was that the bank would give them two additional months in which to pay. At different meetings many proposals were made and agreed upon, only to be disregarded later. A lot of emotional energy was consumed; ill feeling toward the bank flared up. The final solution was to sell the stored seed at the depressed market prices of the end of the season and to repay the bank.

When the final report on the project was made and a balance taken of the first year of operation, only a very small amount of cash money remained. However, the written report, or account, purported to show a profit approximately thirty times higher than available cash. This figure included the actual cost of left-over depreciated equipment and the estimated cost of the third-grade potatoes which the shareholders had taken but never relinquished. The question then arose as to how to repay the community for the use of the communal lands. Some were of the opinion that since profits had been so low, SAP should not pay anything; others proposed that it be paid in kind, that is, with left-over equipment; others claimed that it should be paid in cash.

Profits were perceived in different ways by outsiders. Ideas on the final results were usually exaggerated and many rumors and counter-rumors appeared: that figure "x" had appeared in the local newspaper, that figure "y" was seen in the Huancayo office of the Extension Service, that the equipment had disappeared, and that the community would get nothing.

Another question came up. Some farmers had leased to SAP some of their private property and there was reluctance to pay for these leases. Also, some SAP members had at times provided food for workers, and no financial recognition was contemplated.

Thus ended the first year of operation of a project in supervised credit.[11] When the stored seeds were being sold to repay the loan, talk was already heard about buying potatoes again within two months (this time at "inflated" prices) to carry on the second year of operation.

A SOCIOLOGICAL ANALYSIS

When the SAP shareholders and the extension agent, as well as many villagers, were asked what was the chief factor which in their opinion accounted for the unanticipated low profit, the answer was forthright: "lack of control." By this was meant, among other things, that those responsible for "keeping time" for laborers, as well as for farm machin-

[11]Some of the agricultural equipment was left with the community as a guarantee for cash payment which would be made early in the second year of operation. Some of the farmers who had leased land were paid in kind.

ery operators, and so forth, did not do an efficient job, that those responsible for the distribution and use of equipment and materials did not work efficiently, and that those responsible for the harvest and sale of the products were not as efficient as desirable.

Lack of control, if such was the key factor, throws a great deal of responsibility on the organization of SAP as a group. Any group, formal or informal, has explicit or implicit *goals* for which it strives; it has *means* to attain these goals and *norms* in relation to the use of these means; it also has *sanctions* to make members conform to expected behavior. A group also has structure: to fulfill its ends it has positions with corresponding responsibilities which are ranked on the basis of *status* and *power*. In the course of its lifetime, a group tends to develop *beliefs* and *sentiments*, which give it cohesion. Following an orientation similar to that of Loomis on social systems, an analysis of SAP is undertaken below in terms of these variables.[12] This analysis attempts to throw light on several queries: the part played by several elements of the social system in determining the result of its first year of operation; the persistence of SAP as a social system in the face of what could be interpreted as the unfulfillment of a goal; the influence of the system on its individual members and on the larger social system of Pucará. Such an analysis may be of both theoretical and practical interest, that is, it may have relevance for sociologists as well as for change agents.

SAP AS A SOCIAL SYSTEM

A social system consists of "the interaction of a plurality of individual actors whose relations to each other are mutually oriented through the definition and mediation of a pattern of structured and shared symbols and expectations."[13] It could be analyzed in terms of its component elements: goals, means, norms, sanctions, ranking system, status-roles, power, beliefs, and sentiment. Sociocultural change could be studied, taking as starting points the corresponding dynamic aspects or processes of each of the above categories: attainment of goals, utilization of means, evaluation, application of sanctions, allocation of status, role performance, decision making, validation of beliefs, tension management in sentiments.

Goals and their attainment: Each of the sponsoring agencies or agents tried to imbue SAP with one clear-cut goal: *the making of a substantial profit*. They succeeded in making this SAP's highest motivation force. There were also secondary goals, brought in by the change agencies and accepted by all: education in new technology, an increase in pro-

[12] C. P. Loomis and J. A. Beegle, *Rural Sociology: The Strategy of Change* (New York: Prentice-Hall, 1957), ch. i; and *Rural Social Systems* (New York: Prentice-Hall, 1950), ch. i; and C. P. Loomis, *Systemic Sociology: Essays on the Persistence and Change of Social Systems* (New York: VanNostrand, forthcoming), Essay 1.

[13] *Ibid.*

duction, and a real-life demonstration of what a community could accomplish. Although at the end of the first year of operation no substantial profits resulted, no one in SAP defined the outcome as a failure; in fact, many defined it as a partial success, for, as they pointed out, there had actually been some profits. Practically all recognized the attainment of at least some secondary goal: a gain in knowledge and skills in connection with technical agriculture. In the opinion of SAP members, therefore, goals had been either entirely or partially attained.

Means and their utilization: Practically all of the community cropland located in the most accessible parts of the village was made available for the enterprise. Capital was available and made it possible to use all kinds of farm machinery, labor, tools, selected seeds, insecticides, fertilizers, and the like. The markets of Huancayo and Lima, of over one million people and connected with Pucará by road and railroad, were available and absorbed the crop.

Norms and their evaluation: Initially norms were set regulating the use of land and capital, of labor, of tools, equipment, cultivation methods, and so forth. Some were definite and specific, some general and diffuse. It was agreed by all to use certain communal lands and to repay the community a certain sum for their use, to comply with restrictions which the bank had imposed on the use of funds, and to follow the norms (practices) that the Extension Service thought "technically" important for the success of the project.

Those rules which were specific and for which there were clear-cut sanctions were complied with. For example, the bank required them to accept the extension agency's "technical advice," and they did; the buying of seeds and equipment was to be in the hands of the extension agency, and this course was followed; the bank was to be repaid, and it was. It is interesting to observe that these norms involved relations with outside agencies or systems. On the other hand, such specific norms as paying the community as well as local individual farmers for the lease of land were complied with very reluctantly by many SAP members as well as by outside advisors. Local commitments were given second priority, so to speak.

Rules pertaining to technical matters such as labor control, control of equipment, and the like, which were diffuse for persons not having had previous experience in them, and for which there were no clear sanctions, were not fully complied with.

Sanctions and their application: Noncompliance with agreed-upon specific norms governing relations with the bank would have brought definite punishment upon SAP members: withdrawal of the loan or confiscation of property. Although reluctantly, due to the financial results of the first year of operation, these rules were complied with. Clear, specific norms dealing with the extension agency's role in technical advice, for which definite sanctions were provided, were also complied with.

Thus, the extension agency was to manage the funds, or they would be withheld; the community was to be paid for the use of lands, or they would not be used the second year, and so forth. On the other hand, rules which were never too specific, particularly in relation to responsibilities of SAP members as individuals, and which did not contemplate individual penalties, were not complied with, in the strict sense. Thus, individual members left for Lima when they were most needed, or did not perform certain required tasks because "If he doesn't do it, why should I?" At the end of the first year one member of SAP, as well as the extension agent, recognized the need for setting up individual penalties for noncompliance with assigned responsibilities.

Ranking and the allocation of status: The position of highest prestige within SAP, that of president, was awarded to the *personero,* who had taken such a decided interest in its organization. The *personero* was personally a high-ranking individual within the larger social system of Pucará. Two other positions of prestige, those of treasurer and secretary, were also filled with high-ranking individuals in the community. In addition to the commonly assumed responsibilities of these positions, the three members presumably had added responsibilities in relation to the field work. So had the remaining seven members.

Status and role performance: This was one of the critical elements of the system. In the eyes of their incumbents, positions within the system did not have clear-cut responsibilities. Moreover, because of the initial urgency of the situation, these positions were filled with people who were not, perhaps, the best qualified for their occupancy. Thus, many people in the community made fun of SAP's composition.[14] Furthermore, no explicit, intensive education of these incumbents as to the meaning of their responsibilities was attempted either by the extension agency or the administrator. How the "labor control" man, or the "fungicides" man, and the rest should actually perform was left to their own good judgment. The performance was very inefficient. Another factor which contributed to inefficient performance was the administrator himself: not only did he fail to educate members, he also interfered with their performance of roles during the first six months of operation.

Power and decision making: Although the ultimate source of power, in so far as the project was concerned, in principle resided in SAP members, the two key positions of power were not held by SAP members; these were the "technical advisor" (to the project) and its "administrator" (for the first six months). Decisions on what and how much to buy, where to buy it, what equipment to use, agricultural practices to

[14]Although all SAP members did some type of farm work, many depended heavily for their livelihood on outside sources of income: two on retail business, one on a political clerical job, one on a carpentry shop, one on a mechanic shop in Huancayo, one on a trucking business.

be followed, the general labor needs, the harvesting and marketing of the product, and so forth, were initiated by the extension agency and authorized by key SAP members. The administrator assumed direct control of many of the day-to-day activities, such as the general supervision of labor, the preparation of payroll forms, and control of equipment. The fact that he had been appointed to the position by the bank, against the wishes of other SAP members and the extension agency, contributed to his assuming a dominating role in SAP affairs. He exercised considerable coercion on SAP members and succeeded in instilling in them a high degree of fear. SAP members were advised by the extension agent to make a formal complaint and request the administrator's removal, but fear prevented them from initiating this action. When the administrator was removed, his position remained unoccupied and the power of the position became diluted among SAP members; then "everybody wanted to be a boss."

Beliefs and their validation: Among SAP members there was initially a strong faith in the Extension Service and the part it would play in the attainment of the goals. There was faith in technical knowledge as contrasted to "empirical" knowledge. At the end of this first year, this faith in technical knowledge was validated in the opinion of SAP members: they had seen the "difference" and welcomed the change. Their financial expectations did not materialize, yet many SAP members blamed it on themselves rather than on the extension agency. All of them still felt that SAP would have to count on the extension agency's advice during the following year.

There was apprehension regarding the bank, and several of the beliefs which were widely held within the larger system carried over into SAP, that is, that the bank was merciless and would grab the members' properties in case of financial failure of the enterprise. None of these beliefs was validated, yet the role played by the bank did not help change a negative image which persisted among most SAP members toward the close of the first year.[18]

Sentiment and tension management: SAP as a system was more *Gesellschaft* than *Gemeinschaft*, more rational than affective. The key motivational factor for holding it together was economic. As many SAP members explained, they were literally "forced" to join. However, the economic motive held them together. During the course of events, such forces as the behavior of the administrator, some of the bank's policies, and some local reactions to the system led to a closer identification of members with the system. At meetings in which "threatening" forces were discussed, a great display of emotion was evident. Yet opportuni-

[18]It was admitted by many villagers that the bank had been lax at first, but had adopted strict measures as a reaction against "unfair" practices which were followed by some villagers in getting and using the loans. A positive image is held of the livestock section of the bank, but this is not ordinarily associated with it. This unit, formerly autonomous, was incorporated into the bank in 1952.

ties were always provided for the dissipation of this emotional energy. When the meetings appeared most heated, joking and kidding would take place, resulting in tension release. With the exception of one member of the system, all wanted to remain in SAP at the end of this period. But members considered very few of the remaining members desirable or suitable to remain in SAP; most chose as few as two or three with whom they would care to continue.

SAP AS RELATED TO THE LARGER SOCIETY

Any study of SAP would be incomplete without mention of some of its linkage to the larger social system of Pucará, within which it functioned. Two elements of the larger system are of particular relevance for this analysis: the system of beliefs and the authority-influence structure.

System of beliefs: There were strong beliefs within the larger system which were inimical to the creation of SAP and to its persistence: "SAP means the creation of a hacienda"; "SAP means the loss of our communal lands"; "SAP will go bankrupt and its members will lose their property."

These beliefs accounted for much of the initial opposition to the project: people were reluctant to join SAP, prospective members would not sign up, and so forth. At the end of the first year of operation, these beliefs were not validated and they lost their hold on villagers.

It is worth pointing out that, at the end of this period, about 50 per cent of the local farmers believed that through the project they had learned new things: the use of insecticides, fungicides, and fertilizers, and new methods of cultivation.

Authority-influence structure: While it is true that some of the local political authorities "legitimized" SAP, there remained people in key positions of authority, as well as several highly influential persons (who are always potential candidates to positions of authority) who, if not inimical, at least were not receptive to SAP. It is well to remember that among the 100 families "evicted" from the leased lands, there must have been, at the very least, one influential person. There were, therefore, potential molders of opinion who were not receptive to SAP. In this connection it is pertinent to recall the school incident, a potential factor in alienating the school.

CONCLUSIONS

From the frame of reference of SAP members, the primary goal of the *sociedad* was not completely attained; that is, the anticipated high profits did not materialize. The analysis that has been made shows how some factors were of more significance than others in determining the results of the first year of operation. Thus the goals—as would be desirable from an action point of view—were very specific and the means available to attain them were adequate. On the other hand, the

unclear definition of statuses or positions within the system, the unsystematic or simplistic "education" of members into new responsibilities, the actual interference with the performance of roles during the first six months of operation, the absence of clear-cut sanctions to make members conform with expected behavior within the system itself, and the power cleavages all contributed their share in determining the unexpected results. It may be relevant to point out that the larger society of Pucará is primarily *Gemeinschaft* in orientation and would have a tendency to push its members, in whatever small social system they might be, toward the very kind of patterns which are less functional for a rationally oriented system such as SAP.

In spite of the apparent unfulfillment of the primary goal, SAP went into a second year of operation (and is still an on-going system). Several factors may have contributed to this. There was recognition on the part of practically all SAP members of the fact that a secondary goal, the acquisition of technical agricultural knowledge, had been attained. Even in relation to the primary goal, the situation was defined as partially successful. Furthermore, certain beliefs, sustained previously by SAP members in relation to the value of technical advice provided by the extension agency, were still held at the end of the year. Certain beliefs held by the population as a whole, in relation to probable consequences of close association with the extension agency and the bank, were not validated. It may be pointed out that the "experiment" of Pucará had received large national publicity and that therefore forces beyond the village also had a vested interest in keeping it alive.

SAP was highly influential, not only for its members but also for the village as a whole. Thus all SAP members explicitly recognized that they had learned new things through the project: the proper use of fertilizers and insecticides, the value of selected seeds, proper cultivation methods, the value of mechanized agriculture. They also recognized having acquired experience in managing large enterprises. As was pointed out before, 50 per cent of the villagers also explicitly recognized having acquired new knowledge through the project.

THOMAS LUCIEN BLAIR

Social Structure and Information Exposure in Rural Brazil

The industrialization of rural Brazil has contributed to an increasing complexity of social life. Among the important results of this process have been the development of rural factory towns, new patterns of social interaction among workers, and their exposure to new sources of social knowledge. Data on mass media use, social visiting, and contact with outside persons were collected by questionnaires, case histories, and field observation methods. The author concludes that in the Brazilian rural town community, there have developed patterns of information exposure related to status in the socio-economic structure. Further analysis of the social structural foundations of information exposure in developing world areas may have utility for communication research, for theories about development and change, and for building understanding among nations and peoples.*

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A SIGNIFICANT contemporary movement is the spread of the industrial mode of production to remote areas of the world. Industrial and technological systems, characterized by the application of rational and scientific principles, have penetrated to widely dissimilar cultures often referred to as "backward" or "underdeveloped." With indus-

*The paper is based on data from a larger study of the communications behavior of Brazilian workers sponsored by the Area Research Center and Department of Sociology and Anthropology of Michigan State University, and the United States Department of State Information Service. The author is indebted to Drs. Charles P. Loomis, John Useem, and Joel Smith. The basic data referred to in this paper has been published in Raymond L. Scheele and Thomas L. Blair, "Report on the Distribution and Reception of United States Information Service Films in Brazil" (East Lansing: Area Research Center, Department of Sociology and Anthropology, Michigan State College, 1953 [mimeo.]; and Thomas Lucien Blair, "Patterns of Information Exposure Among Workers in a Rural Town Community in Southern Brazil" (Ph.D. dissertation, Michigan State University, 1956).

trialization have come new forms of social and economic organization, urbanization, new avenues of mobility, and motivations and aspirations toward higher standards of living.

Industrialization also exposes workers to new information, ideas, opinions, and thought, that is, to new social knowledge. Does exposure to new information occur equally for all occupational statuses? To what extent is occupational status a major determinant of information exposure? What are the differences in exposure of workers to information acquired through mass media, social visiting, and contact with outside persons? Are there patterns of information exposure?

This paper investigates the ways in which rural agricultural, factory, and office workers are exposed to sources of new social knowledge in a newly industrializing Latin-American nation.[1] The author attempts to relate the observed variations in information exposure to the structure of human relationships within the changing Brazilian rural town community and to suggest some implications of the data for communication research.

THE RESEARCH BACKGROUND

The field research was conducted in a rural community on the edge of Lake Tapes in eastern Rio Grande do Sul, Brazil. This community, like half the localities in the state, centered around a small town (population two to five thousand) serving as a marketing and communications center. The economy of the area was based on the growing and processing of rice. The town had a rice mill which served as the processing center for the surrounding plantations. There were 650 gainfully employed persons at the time of the study, most of them working in the fields or in the factory. Of fifty workers included in the study sample twenty were agricultural laborers, twenty were factory laborers, and ten were factory office workers.

Agricultural workers (a) never attended school and were illiterate, *(b)* had low mean income and a large number of persons to support, *(c)* lived in company-owned houses, owned no land, and *(d)* were "newcomers" to the community.

Factory workers (a) had some primary school education and were literate, *(b)* earned highest mean income with the largest number of persons supported, *(c)* showed a tendency to own homes and small kitchen gardens, and *(d)* were "old-timers" in the community; half had never lived outside.

Office workers (a) had the highest education and were highly literate, *(b)* earned high mean income with the fewest persons supported, *(c)* are renters or owned their homes, with some owning large tracts of land,

[1]Preston James, "Significance of Industrialization in Latin America," in Fred E. Dohrs, L. M. Sommers, and D. Peterson (eds.), *Readings in Geography* (New York: Crowell, 1955).

and *(d)* were "old-timers" in the community, although most had lived outside.

RESEARCH HYPOTHESIS AND ANALYSIS

The general proposition of the inquiry suggested that the agro-industrial economic organization of the rural town community in Brazil exposed varying groups of workers to different environments which served to affect the probability that they would possess a given pattern of exposure to new social knowledge. An empirically testable hypothesis was formulated which stated that the form and character of information exposure, expressed in terms of potential sources of information exposure—mass media, social visiting, and contact with persons from outside—would vary as the occupational position of the worker in the rural town community varied.

The research data were collected by questionnaire, case histories, and participant and nonparticipant observation over two one-month periods. The statistical analysis was designed to permit an evaluation of the association between the independent variable—that is, the pattern of arrangement of the three occupational groups within the social structure—and the dependent variables stated in the research hypothesis. The investigator wished to know, "Did the acts belong in a single pattern?" "What was the direction of the pattern?" "What were the differences between the groups and their degree of significance?"

In preparing the data for analysis the occupational groups were arranged according to their status in the socioeconomic structure. Then a set of categories of the responses to each of the specific questions relating to the three dependent variables—exposure to mass media, social visiting, and contact with outside persons—were devised. The responses were ranked in such a way that they indicated relative degrees of information exposure from low to high and allowed the subjects to be ranked by their responses. For example, responses to a mass media question on frequency of newspaper reading were ranked "never, two or three times a year, once a month, once a week, several days a week, and daily." Arranging the data in this manner made possible the use of the average rank technique[2] and allowed for the formulation of a number of operational hypotheses which could be tested by nonparametric statistical techniques.[3]

[2]W. H. Kruskal and W. A. Wallis, "Use of Ranks in One-Criterion Variance Analysis," *Journal of the American Statistical Association,* XLVII (1952), 583–587.

[3]K. Walker and Joseph Lev, *Statistical Inference* (New York: Holt, 1953), pp. 426–450. Many statistical methods depend upon the assumption that the samples were drawn from a normally distributed population. In the present study, this assumption could not be made; limitations in the sampling procedure led to the choice of nonparametric distribution-free methods of statistical analysis. The "H" test, whose interpretation is comparable to a single-classification analysis of variance, is

Each operational hypothesis assumed that significant differences among the average ranks for each occupational group would occur and stated the hypothesized direction and pattern of difference. These hypotheses were arranged so that it was possible to treat each initially as independent indices of the dependent variable to which they were related. In each case it was hypothesized that agricultural workers would have the lowest average rank (indicating the lowest degree of exposure); factory workers would have the next highest average rank or the next highest degree of information exposure; and office workers would have the highest average rank or the highest degree of information exposure in terms of each of the following thirteen factors:

Mass media: (a) literacy and newspaper readership, *(b)* frequency of newspaper readership, *(c)* the extent of newspaper readership and radio ownership, *(d)* "cosmopolitan-ness" of radio stations listened to.

Social visiting: (e) persons visited most often (by occupation), *(f)* persons visited most often (by kinship), *(g)* visiting kin who are in the same occupational position, *(h)* nonkinship visiting of persons in the same occupational position.

Contact with persons from outside: frequency of contact with persons *(i)* from other rural localities, *(j)* from the capital city, *(k)* from other states, *(l)* from other countries, and *(m)* the most distant place from which persons have been contacted.

Deviations from the hypothesized direction could occur since the patterns which were possible included not only the hypothesized pattern, but also five nonhypothesized patterns. Furthermore, the differences between the average ranks of the three groups on any operational hypothesis might have been either significant or nonsignificant. Tests of the null hypothesis that there were no differences between the occupational groups were made for each operational hypothesis utilizing the "H" nonparametric statistical test devised by Kruskal and Wallis.[4] Utilization of the "H" test made it possible to assess the significance of the difference between the distributions of the three occupational groups, ordered on the same criterion, by comparing the average ranks of the groups. In the present study the .05 level of significance was used.

FINDINGS

Information exposure does not occur equally nor randomly in the rural town community. The findings of the research reflected a basic

valid for any parent population ordered on a continuous variable. Its two-tailed interpretation is more conservative than a one-tailed interpretation. When the samples come from identical continuous populations "H" is distributed as Chi-Square with k-1 degrees of freedom permitting the use of Chi-Square tables in interpreting the findings.

[4]See Kruskal and Wallis, *op. cit.*, and Walker and Lev, *op. cit.*, pp. 436–438.

stratification of information exposure along occupational lines. Office workers had the highest degree of information exposure: they were all literate and had high purchasing power; they were frequently exposed to mass media; they had their high exposure reinforced through frequent social visiting with highly exposed fellow workers; and they had a fairly wide and high degree of contact with persons from outside.

Factory workers had a higher degree of potential exposure than agricultural workers: some possessed the prerequisites for use of mass media; these tended to be exposed to the principal means of media communication; they had their exposure reinforced by frequent social visiting with highly exposed fellow workers and with office workers who were highly exposed to media; they had a high rate of contact with bearers of information from the outside.

Agricultural workers had a low degree of exposure to new information: they did not possess the necessary prerequisites (literacy and money for example) for the use of mass media; they were infrequently exposed to the principal means of mass media communication; they were not exposed to new information through social visiting since persons they visited were fellow workers as unexposed as themselves; and they had an extremely low and infrequent degree of contact with bearers of information from the outside world.

The study revealed three specific patterns of information exposure, each related to a specific occupational group.

Type I. (a) Primacy of interpersonal information exposure. *(b)* Exposure to new information infrequent. *(c)* Content of information received: local and provincial. *(d)* Persons typically rural illiterate agricultural workers. *(e)* Oriented toward traditional "folk" values and patterns.

Type II. (a) Primacy of oral and direct exposure to mass media; oral exposure supportive of direct exposure. *(b)* Exposure to new information more frequent than Type I. *(c)* Content of information received: often about nonlocal occurrences. *(d)* Persons typically urban semiliterate factory workers. *(e)* Transitional between traditional folk values and those of modern society.

Type III. (a) Primacy of direct exposure to mass media. *(b)* Exposure to new information a daily occurrence. *(c)* Content of information received: urban and cosmopolitan. *(d)* Persons typically urban literate office workers. *(e)* Oriented toward modern values common in large Brazilian cities.

These findings are supported by other recent investigations. Lerner, in a study of communications behavior in the Middle East, delineated three groups in terms of their exposure to information media: "moderns," who regularly consumed media; "transitionals," who did so occasionally; and "traditionals," who were rarely exposed to mass

media.[5] His findings concerning the frequency of use of media were identical with the findings presented here: that is, as social position decreased, use of direct channels of information decreased. The social characteristics of persons in the three exposure groups delineated by Lerner were similar to those found in the author's study. In essence, then, the author's office, factory, and agricultural workers exhibited the same characteristic types of information exposure as Lerner's "moderns," "transitionals," and "traditionals." Communication studies in India, Samoa, the Soviet Union, and Latin America[6] also suggest that fairly concrete types of information exposure may exist among similar occupational status groups in other rural town communities of newly industrializing underdeveloped areas. Research investigations reported in special issues of the *Public Opinion Quarterly* and the publications of the Center for International Studies at the Massachusetts Institute of Technology reveal additional corroborative evidence for these findings.[7]

By way of "explaining" the patterns of information exposure observed in the town studied, it is necessary to take into account some general class and status factors.[8] In modern southern Brazil the values of the older fedual plantation order serve as a means of status-fixing and patterning of social relations. An individual's contact with other persons and with the objects of the modern agro-industrial society are limited by such factors as family background and inherited work-status group. Agricultural, factory, and office workers are not socially

[5]Daniel Lerner, with P. Berkman and L. Pevsner, *Modernizing the Middle East: Studies in Communication and Social Change* (Cambridge, Mass.: Center for International Studies, Massachusetts Institute of Technology, 1955 [mimeo.], ch. 4); and Daniel Lerner, "A Scale Pattern of Opinion Correlates: Communication Networks, Media Exposure, and Concomitant Responses," *Sociometry*, XVI (1953), 266–271.

[6]Y. B. Damle, *Communication of Modern Ideas and Knowledge in Indian Villages* (Cambridge, Mass.: Center for International Studies, Massachusetts Institute of Technology, 1955); Felix M. Keesing and M. M. Keesing, *Elite Communication in a Non-Western Society: A Study of Leadership in Samoa* (Stanford: Committee for Anthropological Research, Department of Sociology and Anthropology, Stanford University, n.d.); Raymond A. Bauer and D. B. Gleicher, "Word-of-Mouth Communication in the Soviet Union," *Public Opinion Quarterly*, XVII (1954), 297–310; Peter H. Rossi and R. A. Bauer, "Some Patterns of Soviet Communications Behavior," *Public Opinion Quarterly*, XVI (Winter, 1952–1953), 653–666; Frank Bonilla, "A Comparative Study of the Audience for Mass Media in Three Latin American Capitals" (Master's thesis, New York University, 1953).

[7]Leo Lowenthal, ed., *Special Issue on International Communications Research, Public Opinion Quarterly*, XVI, (Winter, 1952–1953); Ithiel de Sola Pool, ed., *Special Issue on Studies in Political Communication, Public Opinion Quarterly*, XX (Spring, 1956).

See also Daniel Lerner, ed., *Special Issue on Attitude Research in Modernizing Areas, Public Opinion Quarterly*, XXII (Fall, 1958). Francis X. Sutton's article suggests some provocative ideas for communication research in Africa which may provide additional tests of the author's hypotheses.

[8]Charles Wagley, *Race and Class in Rural Brazil* (Paris: UNESCO, 1952).

valued in the same manner and are not equally stigmatized. Higher class, status, and power positions are generally accorded to persons of "good" family and educational background engaged in professions not requiring manual work and systematically denied other persons. The three groups studied occupied different positions in the productive system and did not share equally in the distribution of the goods of the society. Office workers had decidedly better "life chances" than factory and agricultural workers; and the "dead hand of the past" functioned to inhibit social mobility and to maintain the social patterns of past centuries.

What is described here is not, however, a fully closed system. Manifold factors associated with the development of agro-industrial enterprise have caused tensions and changes in the structure and organization of the rural town community.[9] The development of new jobs requiring specialization and literacy, the displacement of old jobs and skills, and the purposive recruitment of agricultural workers into the factory system all created tensions in the social structure. In the ensuing upheavals the social order underwent changes as individuals advanced or descended from one class to another. A factory class emerged, and its members interacted, individually and in combinations, with persons from other social classes in dynamic life situations. In this manner, individuals acquired the necessary skills for information exposure or, already possessing these skills, became increasingly exposed. The desire for a more satisfactory life, for higher wages and standards of living, for new experiences, for class mobility—all imperatives for effective participation in the new agro-industrial situation —served to motivate persons toward greater knowledge of the world around them. In the rural town community factory workers are an emergent class, and their patterns of information exposure, as they result from their occupational position and other social structural factors, represent a transition away from the traditional type of exposure patterns of agricultural workers toward the more modern exposure patterns of office workers.

STATISTICAL SUMMARY AND METHODOLOGICAL NOTE

The tabular summary of tests of the thirteen operational hypotheses showed the following results:[10]

[9]Charles Wagley, *A Typology of Latin American Sub-Cultures* (New York: Department of Anthropology, Columbia University, 1953 [mimeo.]). For an urban comparison see Thomas L. Blair, "The Negro Worker in Urban Brazil," *The Crisis*, LXI (Dec., 1954), 592–599.

[10]The results of the tests are presented here in written form. Capitalized letters refer to agricultural (A), factory (F), and office (O) workers. Letters in lower case refer to the thirteen operational hypotheses formulated in the section on Research Hypothesis and Analysis.

(1) Hypothesized direction A-F-O and significant at the 0.5 level or less: operational hypotheses *(a)*, *(b)*, *(c)*, *(e)*, *(g)*, *(h)*, and *(l)*.

(2) Hypothesized direction A-F-O not confirmed at 0.5 level or greater: operational hypothesis *(d)*.

(3) Nonhypothesized direction F-A-O and found significant: operational hypothesis *(f)*.

(4) Nonhypothesized direction A-O-F and found significant: operational hypotheses *(j)*, *(k)*, and *(m)*.

(5) Nonhypothesized direction A-O-F and found not significant: operational hypothesis *(i)*.

Six of the thirteen tests did not provide supporting evidence for the research hypothesis. The results—see hypotheses *(j)*, *(k)*, *(m)*, and *(f)*—indicated that the research hypothesis needed some revision to take into account two related factors not specified in the original statement. Reanalysis of the data provided explanations for the nonconforming tests, and the general hypothesis was expanded to indicate the casual efficacy of factors additional to the variable concerning stratification among the occupational groups studied.

There was reason to believe that if certain factors related to the location of employment and to the presence of kin in the community had also been predicated originally as significantly related to information exposure, then perhaps eleven or twelve of the thirteen tests would have supported the research hypothesis. A revised statement of the research hypothesis would indicate, therefore, that the form and character of information exposure among workers in a rural town community in Brazil expressed in terms of mass media, social visiting, and contact with persons from the outside would vary as the occupational position, location of employment, and presence of kin varies. This revision of the research hypothesis serves more clearly to indicate the specific aspects of life in the agro-industrial rural town community which significantly affect the probability that varying types of workers will possess given patterns of exposure to a new social knowledge.

CONCLUSION AND IMPLICATIONS FOR COMMUNICATION RESEARCH

Information exposure of workers in the rural town agro-industrial community is related to the structure of human relations. Who talks to whom, how often, on what subjects, and with what influences are all aspects of the social structure. The way a person is exposed, when, and how frequently, is affected by his occupational status in the community.

Patterns of information exposure vary as widely as the patterns of social behavior associated with differing status positions. These patterns develop as part of social activities involving interaction with others in institutionalized ways, within dynamic life situations. Such behavior

as collective radio listening, social visiting and the exchanging of information among kin, and attendance at movies with fellow workers suggest that a well-developed web of organized social relationships exists and influences the exposure of workers. The particular type of exposure pattern common to groups of individuals is incorporated into their lives. There are socially approved media and channels of exposure and as a result shared collective selections, meanings, and understandings. How the individual reacts to information, news, and opinions cannot be isolated from his normal conduct in society. Where deviations from established patterns occur they may be explained in part by a complex of factors associated with the process of social change as it occurs in the underdeveloped areas of the world.

Audience analysis: In the Brazilian rural town community there appears to be little justification for studying audiences as simple aggregations of discrete individuals. The audience to every medium is structured, with its members playing roles beyond the medium and also as a result of it. Members of audiences belong to distinct social groups which differ in origin, occupational position and location of work, styles of life, family structure, and age grade. In sum, the "audience" for new information is, in reality, a number of varying audiences centering around disparate social groups.

Research in this area needs to indicate the generally relevant historical and demographic features of the study populations, the nature of the socioeconomic order and its system of organization, and the relationship of observed patterns of audience behavior to the arrangement of persons in the social structure.[11] Related information in such research should include data on the existence and availability of mass media, the accessibility of mass media and its information, exposure to media and restrictions on such exposure, informal channels of communication, and the communication elites and carriers of news and opinions and their role in the communications process.[12]

Social psychological factors: Social identifications, images, internalized standards, and subjective sentiments held by individuals about sources of exposure and their content affect and predispose certain reactions to messages from the outside world.[13] In the present study

[11]See T. Lynn Smith, "The Rural Community with Special Reference to Latin America," *Rural Sociology*, XXIII (1958), 52–67, for a discussion of needed areas of research in Latin-American communities.

[12]Charles Y. Glock, "The Comparative Study of Communications and Opinion Formation," *Public Opinion Quarterly*, XVI (Winter, 1952–1953), 512–523; Paul Lazarsfeld, "The Prognosis for International Communications Research," *Public Opinion Quarterly*, XVI (Winter 1952–1953), 481–490; Paul Lazarsfeld and G. Knupfer, "Communications Research and International Cooperation," in Ralph Linton, ed., *The Science of Man in the World Crisis* (New York: Columbia University Press, 1945); Lowenthal, *op. cit.;* and Sola Pool, *op. cit.*

[13]Daniel Lerner and D. Reisman, "Self and Society: Reflections on Some Turks in Transition," *Explorations* (June, 1955).

attitudinal factors operated to restrict use of media, especially among agricultural and some factory workers. Uneducated persons were mystified by and had fear of the radio and cinema; they felt that modern means of communication were "the devil's work." Some had no interest in information communicated through mass media; others appeared more sophisticated and said, "It's all propaganda." The traditional geographical and mental isolation of the peasant crippled his imagination, leaving him incurious, apathetic, and undesirous of knowing more about the world outside his family, neighborhood, and place of work.[14]

Social psychological analysis can contribute insights concerning what it means to be a "peasant" or a "factory laborer" in a changing society, and how being a psychological member of a social group affects reactions to the means of exposure, to the content of the messages transmitted, and to the communicators of information.[15] It can also provide plausible explanations of the mechanisms which intervene between personality and communications behavior when the effects of social structure and cultural background are held constant. Sociometric methods and techniques of field theory and group dynamics can be of use in singling out influentials, opinion leaders, transmitters, and their personal influence.[16]

Policy implications: The spread of technological means of communication into the nonindustrial areas of the world and the expanding activities of governments and agencies in disseminating information through systematic use of communications methods have practical as well as theoretical implications. Problems of political and economic development in the modern world call for attention to the content

[14]Bert Hoselitz, ed., *The Progress of Underdeveloped Areas* (Chicago: University of Chicago Press, 1952). This work contains several articles indicating some of the factors which play a part in the exposure of people in underdeveloped areas. See R. Linton, "Cultural and Personality Factors Affecting Economic Growth"; Melville J. Herskovits, "The Problem of Adapting Societies to New Tasks"; and Samuel P. Hayes, "Personality and Culture Problems of Point Four."

[15]Wilbert E. Moore, "Labor Attitudes Toward Industrialization in Underdeveloped Countries," *Papers and Proceedings of the American Economic Association, American Economic Review*, XLV (1955), 156–165.

[16]Elihu Katz and Paul Lazarsfeld, *Personal Influence: The Part Played by People in the Flow of Mass Communications* (Glencoe: Free Press, 1955), Chapter 7; Charles P. Loomis, J. O. Morales, R. A. Clifford, and O. E. Leonard, eds., *Turrialba: Social Systems and the Introduction of Change* (Glencoe: The Free Press, 1953); Charles P. Loomis *et al.*, "Social Status and Communication in Costa Rican Communities," in Olen E. Leonard and C. P. Loomis, eds., *Readings in Latin American Social Organization and Institutions* (East Lansing: Michigan State College Press, 1953); Francis Williams, *Transmitting World News* (Paris: UNESCO, 1953); and Joel Smith, "Organization of the Farm and Mass Communications" (Ph.D. dissertation, Northwestern University, 1954); and Robert K. Merton, "Patterns of Influence: A Study of Interpersonal Influence and Communications Behavior in a Local Community," in *Communications Research 1948–49* (New York: Harper, 1949).

and patterns of communication between peoples and cultures. International communication as a factor in achieving and maintaining world peace and understanding has become increasingly important in a world torn by tension, misinformation, and misunderstanding.[17]

Functional analyses along the following lines may prove fruitful to action-oriented researchers.

1. Analysis of the ways in which opinions are formed and ideas exchanged around the world and particularly the barriers to the free flow of communications between peoples.

2. Studies of the communications network of a given society and how that society influences messages from the outside.

3. Studies of communications that lead private individuals to take effective action to influence their life-situations.

The most important policy implication of this investigation, from the author's point of view, is the necessity to reach the individual on the level at which he is most receptive. This level seems to be associated with that role which he sees for himself in relation to the groups in which he holds membership or wishes to hold membership.

From the point of view of world peace and order, the increasing exposure of the people of less developed areas to news, information, opinions and ideas—in short, to new social knowledge—makes it possible to communicate the desire for peace and to stimulate a proper climate for harmony and understanding among nations. In the words of one United Nations technician,

> If the peoples and nations are to understand each other, they must know about each other. Moreover, their news of each other must be continuous and consistent. Words must move constantly over frontiers and across continents and not only at moments of difficulty, tension or international passion. Such knowledge will not, of course, of itself guarantee world peace and international order. But without it peace and order are made more difficult in our complicated yet shrinking world. Lacking it, we live as strangers among our fellows.[18]

[17]William Buchanan and Hadley Cantril, *How Nations See Each Other: A Study in Public Opinion* (Urbana: University of Illinois Press, 1953).

[18]Williams, *op. cit.*

SAKARI SARIOLA

A Colonization Experiment in Bolivia

An experiment in colonization in Bolivia is described. Migration and resettlement of peasants from the Cochabamba Valley area to the Montero region in Santa Cruz were affected in various ways by the attitudes of the colonizers and by a series of social, cultural, and economic factors. The attitudes of the Cochabamba Valley peasants were found to be favorable to migration. Among the colonizing experiences which negatively affected these attitudes and contributed to instability among the settlers were fatigue caused by work in the Santa Cruz colony, the lack of farming implements, the lack of social rewards derived from community life, dangers connected with the new environment, and changes in food habits. The influence on colonization of the valley women's attitudes, the relationships between the colony and the neighboring communities, the structural patterns of the colonizing group, and some sociopolitical phenomena on the national level are discussed. The functions of a proposed pioneer training farm are described.*

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THIS paper deals with an experiment in colonization in which peasants from ten villages in the Cochabamba Valley area were moved to the subtropical lowlands of eastern Bolivia in the Montero region near the city of Santa Cruz. In connection with the colonization project studies were made concerning the attitudes of Cochabamba Valley peasants toward living in selected geographical zones of Bolivia con-

*Data for the study were collected as part of the Project of Transplanting Populations from the Cochabamba Valley to the Zone of Montero, Santa Cruz. This project was sponsored by the Interamerican Institute of Agricultural Sciences, (Department of Economics and Social Sciences and the Andean Zone of Project 39 of the Technical Cooperation Program of the Organization of American States) and the Bolivian Government. The gathering of data began in July, 1954, at the same time as the colonization activities here described. The field work covered in this paper was concluded in October, 1955, after a few of the approximately one hundred colonizers had established comparatively stable family life in the Santa Cruz colony.

cerned in current colonization projects,[1] the effects upon these attitudes of the experiences of valley peasants during their period of work in the farm colony in Santa Cruz, selected group phenomena related to the organization of the colony, and factors on the national level affecting the success of the colony.

Detailed studies of colonization as a dynamic process comprising a relatively long period of time and a complex of intervening factors on the level of individual value-attitudes, group behavior, and on the societal level are scarce. In the present study, the term colonization has been used in reference to a migratory movement of individuals and groups of individuals, from areas where resources for agricultural development have been relatively exhausted, toward areas where such resources are available. It is seen as a function of the initial pressures on the individuals to move, the rewards the individuals expect to obtain by moving, and the balance between rewards and detriments resulting from the experiences encountered during the first periods of life in the new environment. The present research report is concerned with evaluating the impact of the initial motives of Cochabamba Valley peasants to move and the impact of the peasant's colonizing experiences upon the success of a colony.

THE SETTING OF THE STUDY

In June, 1954, the director of the project took a group of the leading members of Ana Rancho, a farm community in the Valley of Cochabamba, to Santa Cruz, where the group observed the different kinds of lands available. This group decided to establish a colony in a forested area near Montero, where a private farming company donated 1,500 hectares of land for the use of settlers. The first group of twenty-one colonizers, almost all of whom were from Ana Rancho, entered the colony in July and returned to the valley after seven weeks of work. The second group, this time primarily from Ucureña, then left for the colony, and a rotation of work groups consisting of about ten to thirty peasants was thus established. Each group remained in Santa

[1]The geographical zones of Bolivia concerned in this study were the following: (1) the open valleys of the eastern Cordillera range descending toward the lowlands in the east, at 6,000–10,000 feet above sea level (the valley referred to in this paper is the Cochabamba Valley); (2) the altiplano, or the Andean highland plateau, between the two Cordilleras, at approximately 13,000 feet above sea level (the *Estancias* is a locally employed term referring to the Altiplano and its fringe zone of Andean mountain slopes); (3) the tropical and subtropical lowlands in the northeast, east and southeast, at a maximum of only a few hundred feet above sea level (from among the lowland areas, this paper deals with the Department of Santa Cruz); (4) the Yungas, or the semitropical closed mountain valleys at altitudes of 3,000–6,500 feet (the Yungas referred to in this paper are those in the Department of Cochabamba). For data on geographical zoning in Bolivia, see Harold Osborne, *Bolivia: A Land Divided*, (London and New York: Royal Institute of International Affairs, 1954), pp. 1–34.

Cruz for a period of about six weeks. Participation in the expeditions was voluntary. Meetings in charge of the project director were held in the valley villages for the purpose of describing conditions in Santa Cruz and enrolling volunteers. A short interview was held with the individuals who volunteered to come.

An area of twenty hectares in Montero was cleared of woods with tractors contracted for the purpose. The colonizers were given free simple food and a few tools. A colony manager was appointed to take charge of the cultivation of the lands and marketing of the produce. Each settler who had spent a minimum of three turns in the colony acquired rights to fifteen hectares of land in the colony area. The property limits were defined before the official property titles were given at the end of the time period covered by this report.

The collective work realized during the time period covered by this report consisted of cultivating corn and rice, erecting two collective buildings, and making a well. In these activities eight groups of colonizers from ten villages in the valley participated. During the stay of the seventh and eighth groups in Montero, the construction of private dwellings was begun and in a few cases completed. Around this time, the colonizers formed among themselves a farm co-operative with officials chosen among the participants by ballot. This attempt to give the colony a formal organization served primarily educational purposes, for the colony director and the manager virtually had the responsibility for decisions of importance.

PROCEDURE OF RESEARCH

A group of thirty-three prospective colonizers from the valley were interviewed after they had worked from one to six months in the colony. The responses given by this group, called the experimental group, were compared with those received to the same questions from a matched control group of forty-one valley peasants who had had no first-hand experience in Santa Cruz. The control group was selected, holding the following factors constant: sex,[2] age, village of origin, occupation,[3] civil status, education received, land tenure, and the knowledge of Spanish[4] as judged by the interviewer.

Tentative questionnaires were constructed containing questions related to attitudes toward colonization and aspects of living in the present place of residence. The pretesting of these questionnaires resulted in a high proportion of vague, evasive, and contradictory re-

[2]All respondents were men. Although women's attitudes toward migration were thought to be of importance, the number of women in the colony was too small at the time of the interviewing to make it possible to include them in this sample.

[3]The majority were members of small landholder families; a minority consisted of landless farm hands.

[4]The mother tongue of the respondents was Quechua.

sponses. The difficulties involved in interviewing indigenous Bolivian populations have been observed by Leonard.[5] This writer, who was present at the interviews held by an interpreter in Quechua, came to believe that the respondents had fears of being forced to emigrate or to be enlisted in the army and also had other suspicions, which might have been related not only to the Bolivian peasants' traditionally guarded attitudes but also to the present postrevolutionary state of instability, rivalries, and political intrigues in the country, by which the whole colonization project was indirectly and directly affected.

In the present study, therefore, the presence of response bias became a matter of primary concern. After experimenting with alternative question formulations and with pictorial techniques, a scale-type structure was used in the final questionnaire. This structure implied the rank ordering of the Altiplano (the *Estancias*), the Yungas, Santa Cruz, and the valley by the respondents in the experimental and control groups according to the preference given in each of the following aspects: the effects of the shortage of lands on the farmer, opportunities to produce more, opportunities to get rich, the security of farm crops, the fitness of the respondent to do farming in that area, the climate, the prevalence of disease, opportunities to reach an older age, the likelihood of acidents, the fatigue caused by farm work, opportunities for making good friends, fear of the dangers caused by other people, opportunities for having fun, the prevalence of thievery, opportunities for engaging in sports, opportunities for being happy, and desirability as a place where the respondent's children might settle.

The type of questionnaire developed implied a repetitive pattern of response to facilitate the interviewing. It made possible the use of figures drawn in the ground, fingers, and other symbols as visual aids. Since the four geographical zones concerned and the questionnaire items were presented in random order, sources of systematic error seemed to be excluded. Evasive, vague, and contradictory responses could be reduced by the task of ranking. The general tone of the questions was thought to be such as would not impress the respondent as too direct or arouse his suspicions.

In order to determine the preference positions for each of the four zones a scaling was used in which the rank order of zone preference by the respondents in both groups was first placed in tables where each column represented a zone and each row a respondent. The numerical preference position for each particular zone was then computed by determining the total number of times when another zone had been assigned a lower position (L) and a higher position (H)

[5]Olen Leonard, *Bolivia: Land, People and Institutions* (Washington: Scarecrow Press, 1952), pp. 221–229. The Quechua-speaking indigenous and mestizo populations of the Cochabamba Valley were undoubtedly more communicative than the Aymaras in Leonard's report.

than the respective zone, and finally computing the preference position through the formula $\frac{L}{L+H} \times 100$. In cases where all respondents in a group gave a zone of preference over the other three zones in the aspect concerned, the preference position of this zone was 100; in cases where all respondents gave a zone a position inferior to all other zones, the respective preference position was zero. The internal consistency of the answers was computed by determining the proportion of the total number of placements in which individual respondents gave each zone a position in accordance with the composite preference position it was given by the group. The results obtained were expected to have predictive value as to the individuals' willingness to move, as to some of the factors related to the willingness to move, and as to the comparative attraction, as places of settlement, of each of the zones concerned.

In order not to employ techniques of analysis which might not be in accordance with the degree of accuracy of the data, the routine procedures of testing the scalability of items and the significance of differences were not applied. It was the writer's impression that the responses of colony members often reflected a desire to conform with group norms and a tendency to give answers thought to satisfy the interviewers. For example, colony members with higher sociometric status often gave more discriminating responses than members with lower status; and a colonizer who had expressed a high degree of satisfaction with living in the colony expressed entirely different attitudes when he decided to leave the colony. The decisions related to migration and colony organization often reflected changes in group atmosphere rather than individually expressed rationalizations and attitudes.

Thus, the causes of error were partly uncontrollable factors commonly encountered in research following the experimental design and partly factors related to the characteristic reactions of the population studied. In order to check the validity of the findings, observational methods were also employed in this study. Additional data were obtained by systematic interviews among the groups of colonizers. To study the structure of the colony group, a sociometric test was employed.

ATTITUDES TOWARD LIVING IN SANTA CRUZ

The results obtained in the control and experimental groups on the seventeen questions concerning attitudes connected with living in the different zones are reported in the table below. In summary, the responses of the control group without first-hand experience in Santa Cruz were as follows. Regarding the availability of lands, the valley was given an inferior position, Santa Cruz the highest. The control group also placed Santa Cruz above the valley in respect to

Table 1. Preference positions given by the control and experimental groups to four zones of Bolivia

Question	Preference position								Coefficient of consistency	
	Estancias		Yungas		Santa Cruz		Valley			
	Control group	Exp. group	Control group	Exp. group	Control group	Exp. group	Control group	Exp. group	Control group	Exp. group
Availability of lands	35	32	84	74	96	100	1	5	97.8	96.3
Opportunities to produce	27	28	34	28	76	99	65	44	70.9	78.7
Opportunities to get rich	15	16	45	46	79	94	54	37	76.0	82.4
Chances to get secure crops	15	22	56	36	75	92	54	48	71.5	78.2
Fitness in farming	24	31	28	3	40	71	96	90	79.7	89.9
Climate	27	22	25	22	65	84	90	67	79.0	78.8
Disease	69	50	13	10	30	69	80	63	76.4	72.9
Chances to reach older age	56	47	10	19	40	59	94	79	88.1	77.2
Accidents	76	47	12	33	27	36	89	85	86.8	73.7
Fatigue	53	55	40	61	55	47	56	37	55.4	59.9
Chances to make friends	16	20	33	16	76	86	79	67	80.1	82.4
Danger on part of people	44	39	43	46	47	69	59	39	55.0	64.9
Thievery	38	35	66	63	77	96	20	4	75.3	93.2
Opportunities to have fun	16	40	23	11	64	72	96	86	88.3	84.3
Opportunities for sports	12	16	25	16	73	80	89	85	88.6	85.4
Happiness	17	23	28	24	72	92	75	55	77.1	79.5
Desirability for children to establish	21	24	21	16	66	97	86	63	81.3	87.9

opportunities to produce more, to get rich, and to have secure crops. Thievery was considered by the control population to be far more common in the valley than in Santa Cruz. This group also placed the home valley only slightly above Santa Cruz on opportunities for happy living, fatigue in work, and opportunities to make friends.

The relatively greater disadvantages of Santa Cruz as compared with the valley were considered to be related to the likelihood of accidents, fitness to work in Santa Cruz, the chances to reach an old age, the prevalence of disease, the opportunities for fun, the climate, the opportunities for sports, and the danger from other people.[6]

Thus, the answers indicated a tendency among valley peasants who had not been to Santa Cruz to believe that the prospects for farming were far superior in Santa Cruz than in the valley; that the characteristics of the Spanish population in Santa Cruz were favorable; and that the negative values connected with living in Santa Cruz were danger, disease, lack of familiarity with subtropical farming, and the lack of certain social rewards derived from community living in the valley.

That the shortage of lands was felt to be a factor unfavorably affecting life in the valley also became apparent in the analysis of the answers of fifty valley peasants to the question, "What should government contribute to help people in villages like this?" The answer most often given was more lands (18 responses), followed by farm tools (15), farm machines (10), clothing (3), education and extension (3), domestic animals (2), work (1), fertilizer (1), market place (1), and civil rights (1).

In the experimental group, Santa Cruz was given higher preference positions than in the control group on all items except fatigue caused by work. However, relatively little improvement was noticed in regard to the questions related to possibilities for fun, for sports, for making friends, and the likelihood of accidents. The home valley was considered by the experimental group to be superior to Santa Cruz with respect to accidents, chances to reach older age, fitness in farming, opportunities for fun, and opportunities for sports.

Further information on the colonizers' experiences in Santa Cruz was obtained by asking twenty-five members of the colony, "Which are the differences between Santa Cruz and the valley that most make you miss your home village?" Nearly one-half (47 per cent) of the undesirable differences mentioned referred to missing their customary foods, such as potatoes, wheat, corn, squash and *chicha*, and corn beer. Potatoes alone were mentioned once out of every six items. Next in frequency came missing such social activities as village fiestas, the carnivals, walks around the plaza, friends and neighbors, and soccer

[6]While the Cruzeños of Spanish descent were believed to be friendly, this attitude reflected a belief in the existence of primitive tribes in Santa Cruz.

games (29 per cent). Commodities and equipment, such as houses and tools, came next in frequency (15 per cent), followed by dangers experienced in Santa Cruz, involving jungles, snakes, biting insects, and wild animals (9 per cent). The answers received to this question confirmed the conclusion already presented on the relevance of social rewards and the influence of the presence of unaccustomed dangers on the process of adaptation in the colony. On the other hand, they indicated two additional factors relevant to the experience of the colonizer in Santa Cruz: the change in diet imposed by life in the new colony and the insufficiency of commodities and equipment there. Observations and open-end interviews with colonizers gave further evidence of the influence of the mentioned factors on the success of the colony.

Fatigue caused by work: The colonizers found the noon and early afternoon hours especially exhausting; many complained of headaches and spent long periods at rest in the shadow of a tree or roof. With few exceptions, the settlers started to work at about 8:30 A.M., had lunch at about noon, and continued working between frequent rest periods up to 3:00 P.M. Some settlers used their heavy valley clothes, which were not suitable for the new climate. A few found it advantageous to change the working schedule which they commonly had observed in the valley. These started heavy work about three hours earlier than the others, dedicated the noon hours to easier tasks, and reassumed heavy work late in the afternoon. Those who began work earlier considered the work in Santa Cruz less tiresome and obtained better results than did the others.

The experience of danger: Some of the objects of the settlers' feeling of danger appeared to be the subtropical forest, snakes, wild animals, and indigenous tribes. These dangers were common topics of chatter in the camp during moments of leisure. If confronted with a situation involving actual danger, the colonizers often behaved in an irrational manner. Upon seeing a snake in the forest, some might blindly run a hundred feet or so to the camp. After having completed the construction of their individual huts in the colony area, most colonizers still preferred to spend the nights in the collective barracks even after two cases of malaria had been discovered among the settlers.

The feeling of danger was increased by the colonizers' inability to come to grips with situations involving danger. The following discussion about snakes between the interviewer and one of the informal leaders of the colony is illustrative of the point:

Q. "Would the colonizer know what to do if bitten by a venemous snake?"

A. "Certainly, Sir. They would know what to do."

Q. "Tell me then, what would they do in such a case?"

A. "Well, they have been told to be careful about snakes around here."

Q. "That's fine. But suppose that somebody is bitten by a venemous snake, right here in the leg, when he is working in the forest. What would he do?"

A. "Oh well, we have been told to be very careful about snakes."

The findings presented in Table 1 indicate that the experimental group placed Santa Cruz far above the valley in regard to danger from other people. Some colonizers experienced relief in being outside the political struggle going on in the valley at the time of the study. "In the valley, when you think you are on the winning side, you will be met with machine guns," one of the colonizers said.

Diet: Although the importance of the dietary changes imposed by colonization should not be ignored, it was obvious that the settlers' opinions in this respect reflected the fact that the colony, at its initial stages, was unable to produce the variety of foods that could have been used to vary the diet offered, which was extremely poor. The funds available to purchase food were limited to such a degree that snake meat, for example, was sometimes used to complete the diet. During periods of heavy rains, the colony was virtually cut off from the centers where purchases could be made. The experiments by a few of the leaders to cultivate potatoes resulted in failure, and it took several months for the colonizers to grow some garden vegetables.

Social rewards: One indication of the importance of social rewards in the process of adaptation was the fact that the rotation of the colonizers leaving for Santa Cruz and returning to the valley was commonly modified, by group decision, in accordance with the calendar of fiestas in the valley. Although other reasons were often given, the main cause for delays in the departure of teams for Santa Cruz seemed to be the settlers' interest in celebrating current local fiestas. Similarly, departures for the valley were either precipitated or delayed in accordance with forthcoming fiestas in the valley. The colonizers tended to give every departure for Santa Cruz an air of celebration. When it became permissible to prepare *chicha* in the colony, the measure was met by the settlers with satisfaction. The colonizers spontaneously elected from among themselves a sports director at an early period of the colony's life. Despite their heavy work, the colonizers spent a great part of their leisure time playing soccer and walking to Santa Cruzian villages several miles from the colony.

SOCIOMETRIC ANALYSIS

Even though the colonizers shared many social and work activities, the group was persistently divided into cliques in accordance with their village of origin in the valley. The sociometric test was applied to the twenty-four members of the colony in January, 1955, and this test was repeated six months later among members of another group of the same size. Nine individuals to whom the test was applied in January

were part of the group studied in July. In the earlier test, the large majority of the group fell into two clearly divided cliques, according to two neighboring villages of origin in the valley, Ana Rancho and Ucureña, from which the majority of the members came. The subsequent test showed that the cleavage between the two cliques, instead of diminishing, had actually increased. The members who came from villages other than Ana Rancho and Ucureña, and who earlier had assumed intermediate sociometric positions, had joined one or the other of the dominant cliques. The ratio of intergroup choices had decreased from 7 to 4 per cent from the total of choices. The leaders of both cliques had strengthened their sociometric statuses.

The colony members with relatively higher sociometric statuses significantly differed from those with relatively lower statuses in their characteristic tendency to volunteer to participate in more periods of work in the colony. This resulted in relatively more changes in the composition of the group where the nonleaders were concerned and in a relatively stable colony leadership. The leaders were found relatively more likely than the others to modify their working schedule; they were more able to experiment with ways to facilitate their work by bringing along with them other members of their families to help, by experimenting with new techniques of cultivation, and by taking more or better tools to the colony. They were relatively more inclined than the rest to make long-range plans, to manifest initiative, to offer criticism and recommendations concerning the colony organization, and to assume special functions in the colony.

The twenty-five colonizers working in the colony at the end of July, 1955, were asked: "Apart from material necessities, how do you think the colony's progress should be promoted?" Two respondents, both of whom occupied very low sociometric statuses, had no suggestions to make. Eight colonizers, with low and median statuses, thought that the members of the colony should increase their work effort. One respondent with median status thought that collective work in the colony should be discontinued, since it had been shown to be the cause of conflicts. Seven respondents, with low and median statuses, insisted on needs of materials and facilities mostly implying the expenditure of money, for example, tractors, tools, houses, the clearance of lands, orange trees, electricity, pasture, cows, vegetables, and a teacher. Seven respondents felt that the colony should be organized in the manner of a co-operative, with responsibilities divided among its members. All seven respondents who emphasized the necessity of a more formal colony organization occupied relatively high-status positions, and none of the sociometric leaders mentioned needs other than that of a more formal organization. Open-end interviews with the leaders indicated that the pressure toward a colony organization along the lines of a co-operative or syndicate was a response to alleged misuse

of authority by the project director and the colony manager, conflict between the members of the colony, and demands by some colony members for an organization similar to that of the local peasants' syndicates in the valley.

In conclusion, the members of the colony who enjoyed higher-status positions were relatively more likely than other members to explore new techniques and forms of life, to be in favor of a more formalized and integrated colony organization, and to be in favor of integrating it with the sociopolitical organization of the country. They also showed a relatively high degree of stability as members, and a progress significantly above that of the nonleaders.

WOMEN'S ATTITUDES TOWARD COLONIZATION

A factor apparently adding to the difficulties of adjustment in the colony was the comparatively strong resistance to emigration by valley women. At the beginning of the project, there were relatively many married men among the colonizers; after the first work periods in Santa Cruz only a few married men remained in the project. The valley peasants characteristically believed that the colonization offered "a chance for bachelors." Interviews with women suggested that their resistance to migration was partly due to their being less informed than the men about Santa Cruz and to their fear of moving. It was the mother who most often implored the project director that her son not be "taken to Santa Cruz" when he had volunteered to go.

In order further to explore the women's attitude toward colonization, the following question was asked in July, 1955, of the twenty-five colonizers in Santa Cruz, all of whom were single: "If you wanted to get married, where do you think you might find a suitable wife?" Seven respondents said that they would choose a Cruzeña. These believed that "the women from the valley are afraid of the forests and everything in them"; that they "will not get used to the heat and the biting insects"; that they "do not know the customs of Santa Cruz"; or that "the stubborn valley girl would not get used to living here." A great majority of the respondents (eighteen) believed that they would take a valley girl for a wife. These thought that "the Cruzeñas are unfaithful"; they "leave the man and go away"; "get sore when one hits them"; or that "the valley girls are sturdier and know how to work and make money." Many thought that they would take a wife from the valley because they "did not know any girls in Santa Cruz" or because they "did not speak enough Spanish to get along with the Cruzeñas."

An additional question was put to these eighteen colonizers: "Have you talked with some valley girl about the possibility of moving to

Santa Cruz?" Nearly all answers received were evasive. One colonizer reported having received this answer from his girl friend: "They say that it would be hot over there. I wouldn't come in these (woolen) *polleras.*"

The following question was also asked of the twenty-five colonizers: "Which members of your family would be willing to come to live here with you, after you have your land and house?" Ten of the twenty-five thought that the whole family would come; eleven believed that their families would need to divide; four were orphans, three of whom would come alone and one of whom would invite his brother to come with him. Four out of the eleven who believed that their families would need to divide said that probably only they would come; five planned to take along one or more of their brothers and sisters; one thought that his mother would stay in the valley while the rest of the family would come; and one said that only his widowed father would come with him, while his brothers and sisters would stay in the valley.

ATTITUDES OF THE CRUZEÑOS TOWARD THE COLONIZERS

Since this report covers only the initial period of colonization, no satisfactory study of the Cruzeños' attitudes toward the settlers was possible. Upon visiting the neighboring villages, the colonizers were generally well received, but local contacts and information received by Cruzeños about the colony were too sporadic to permit making a systematic study of the relationships between the colony and the local people. The colonizers seemed to be aware of the importance of establishing friendly relations with their neighbors, and they made an effort to keep the colony's reputation impeccable. Most worrisome to the colonizers seemed to be the tendency of some of their members to steal, in the colony area as well as outside. During the stay of a group of colonizers on a nearby farm, it was discovered that some of the host's pineapples and a hammock had been stolen. The outraged local farmer forbade the valley peasants "ever to enter his farm." He explained, "Here in Santa Cruz everybody respects his fellow being's rights of property. You, the Valluños, only come here to steal." In response to this and other cases of thievery within the colony area, the colonizers decided that, whenever necessary, the settlers' personal belongings should be inspected and the guilty ones be corporally punished.

Another type of attitude toward the colonization was expressed in pessimistic statements by the Cruzeños regarding the colony's chances to succeed. It was occasionally argued that farm hands hired in the valley and brought to Santa Cruz soon tended to return or that the

valley peasants were used to subsistence farming only; it was also argued that the colony was not equipped with the farming machinery and skills required in the "fight of man against the jungle" in Santa Cruz.

SOCIOPOLITICAL FACTORS

It was impossible for the colony to gain full support of the influential elements of the peasants' syndicates in the valley, who not infrequently said that the project was endangering the achievements of the revolution of 1952. "The transplanting of the best revolutionary elements from the valley to Santa Cruz weakens the position of the victorious revolutionary movement," some political leaders from Ucureña argued. An ultimatum issued to "expropriate the lands of the families whose members volunteered as colonizers" caused the immediate withdrawal from the project of all but one of the colonizers from Ucureña, a loss of nearly one-half of the members. The antagonism toward the project by these political leaders was interpreted by the members of the colony as partial explanation of delays by the government in dispatching money and facilities for the colony's needs.

DISCUSSION

It is usually assumed that people emigrate from one place to another if they are unable to satisfy adequately in the place of orgin some needs that they expect to be able to satisfy better in another place. In the case of the colonization of virgin agricultural areas, however, the problem cannot be reduced to a matter of regional differentials in opportunities for need gratification only. In the case reported in this paper, some of the initial motives to move from the valley appeared to be derived from the deprivations resulting in the exhaustion of adequate ways and means, physical or technological, to maintain farming practices sufficient to support the people residing in the zone of emigration. Information possessed by valley populations on the rich, available lands in Santa Cruz and improved accessibility of this department after the completion of the Cochabamba-Santa Cruz colonization were thought by many to be likely signs of the initiation of a massive "March to the Orient," as proclaimed by the government.

The success of colonization in this experiment depended upon several intervening factors. The main factors were the following:

1. The colonizers experienced a drastic change in environment and were confronted with experiences which were new and unanticipated. Living in the colony signified a change in working and eating habits, did not offer the rewards in friendships, other human contacts, and recreations inherent in community living in the valley, and signified new dangers. The more adequately the colonizer adapted to these changes, the more secure was his permanency in the colony.
2. The colonizers' value-attitudes were not sufficiently compatible

with the long-term planning and deferred need-gratification implied by colonization. Many colonizers gave so much importance to deprivations of a short range, often nonmaterial nature, that they withdrew from the colony.

3. The social distance between the Indian and mestizo colonizers and the officials of European extraction in charge of the colony resulted in inhibitions on the part of the former from coming forward to describe their problems or ask for guidance and, possibly, in some resistance to accept the advice of the officials when offered. On the community level, this social distance resulted in suspicion about the ultimate objectives of the project and in open resistance.

4. Sex-graded differences in value-attitudes and in information on the process of colonization made it difficult to initiate a migratory movement which whole families would join. It also created an imbalance in the work burden in the colony, particularly for young unmarried males.

5. The colony structure itself determined that some colonizers gained status and others remained in low-status positions. Differences in place of origin were associated with clique formation with probable consequences related to permanency in the colony.

6. Social relationships between the colony and its neighboring villages might later on gain in importance in determining the success of the colony. Ethnic differences and prejudices between the colonizers and the native population were already evident on both sides, impeding assimilation and intergroup marriages.

7. There was insufficient co-ordination between national agencies providing the services needed in the colonization effort, and the individual agencies failed to attend to the colony's needs. Among other things, medical care, educational facilities, agricultural extension services, social welfare and case work, and facilities for credit, marketing, and transportation had not been provided to satisfy the colony's needs. This lack of government aid meant that the colonizers were left alone to face problems which they could not solve but which could have been satisfactorily dealt with by a specialist. On the other hand, the director of the project was forced to handle problems beyond his competence. The lack of co-ordination on the national level appeared to be due mainly to political instability on the governmental level at the time covered in this report and to the failure of the government to back colonization efforts adequately as a part of the national land reform.

In addition to the measures that should be undertaken to provide the necessities mentioned above, it might be feasible to experiment with a pioneer training farm in Santa Cruz, an institution preceding the attempts to establish planned colonized communities with individually distributed land properties. This institution might concentrate

on training the colonizers in subtropical farming, demonstrating achievements by colonizers already established, informing them of conditions and services available in Santa Cruz, directing the colonizers to the areas where they might prefer to settle, making available machines, services, and skills needed in starting their farms, carrying on family case work, directing the marketing of the produce of the colonizers, informing the valley populations and the people in the other overpopulated zones of the country on colonizing prospects in Santa Cruz, co-ordinating the services of regional and national agencies, supervising credits, selecting the individuals to whom a provisional and final property title should be given, functioning as an arbitrator between the colonizers themselves and between the colonizers and the native people, studying the process of colonization, and maintaining communications between the colony and other regions of the country. A pioneer training farm might be a subsidized, collectively operated farm, equipped with specialized facilities and personnel, and possibly be a part of the local office of the National Land Reform.

The establishment of a pioneer training farm should make it possible for the prospective colonizers to choose the sites for their future farms on the basis of actual experience gained in Santa Cruz. Such a training farm would make it possible to locate colonizers, not only in isolated starting nuclei, but in different areas of settlement with established community life, which might increase the possibility of the colonizers' becoming more readily assimilated. The selection of colonizers to whom the property titles would be given would occur in circumstances where not only the initial situation but the individual's capacity to become adapted to his new environment would be taken into consideration. The willingness of the farmers to move from the overpopulated areas might be increased by the knowledge that entering a pioneer training farm would be a preparatory stage which would not impose on them immediate responsibilities beyond their sources.

CHARLES E. RAMSEY *and* JENARO COLLAZO

Some Problems of Cross-cultural Measurement

A model for cross-cultural measurement was studied. The analysis was based on data on the level of living of 1,654 families in Puerto Rico and 549 families in Broome County, New York. The first problem is encountered in obtaining a sufficient number of items for study in both cultures. It may be assumed that this problem will become more acute as other cultures are added to the sample. There may be "clusters" of nations for which a sufficient number of items can be found. Additional problems are encountered in testing the validity of items. The need to control culture in these tests is demonstrated. The range of level of living is great from one culture to another. Therefore, cutting points for "possession" of an item cannot always be the same for every culture. It is tentatively suggested that items go through the same "stages" in each culture, and that several cutting points may be drawn for these stages.

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GENERAL PROBLEM

THE growing body of cross-cultural studies is presenting the social scientist and the practitioner with a wealth of theory and recommendations. With few exceptions, however, comparisons are based upon impressionistic data and the case study method. The history of sociology and related sciences indicates that impressionistic data and case studies are not lacking in contribution. Indeed, the fundamental concepts in sociology were largely developed with such methods by the pioneers of the field.

*Four additional sociologists have contributed greatly to the present analysis and manuscript. The authors wish to express their most sincere gratitude to Professors Emmit F. Sharp and Robert A. Danley, Mr. Keith Warner, and Mrs. Gelia Castillo, all of Cornell University; Professor Jose M. Rios, University of Puerto Rico; and the late Dr. Wilson Longmore.

The development of a science depends, however, not only upon concepts and theory but upon empirical testing. Rigorous testing and replication are especially important in cross-cultural theory because of their possible application to international action programs.

Many of the terms often used in cross-cultural analysis imply differences in degree. Some of these terms are: underdeveloped country, industrialization, illiteracy, overpopulation, level of technological advancement, freedom, capitalism, and democracy. The lack of rigorous testing of cross-cultural theory is in part due to the failure of researchers to develop a methodology for the measurement of variables which are cross-culturally applicable, such as those listed above. That is, a methodology is needed for the level of theory in which the culture, society, or country is the unit of analysis.

There are a few exceptions to the lack of rigorous testing in cross-cultural theory. For example, one of the more commonly accepted ideas is that low level of living is a result of overpopulation. Stated as an hypothesis, the greater the population in relation to land and resources, the lower is the level of living. An empirical study of this relationship was made by the late Professor William F. Ogburn,[1] who measured level of living by the use of available statistics which had not been tested for validity as level-of-living items and rejected the hypothesis of the relationship between overpopulation and level of living. Ogburn's study illustrates the problematic situation which is the context of the present analysis. First, the few studies of several cultures lead to skepticism of even the most generally accepted notions in cross-cultural theory, and, second, the paucity of studies and the crude measures used highlight the need for developing the methodology of cross-cultural measurement.

SPECIFIC PROBLEM

The problem of the present study is to determine what adjustments must be made in an accepted scaling model in order to make cross-cultural measurement meet the logical requirements of measurement in general. This problem is warranted only if it can be assumed that the logic of measurement is the same for testing theory at any level but that the specific scaling procedures may not be.

The analysis which follows is an empirical investigation of one scaling model in terms of data from two cultural settings. The analysis is limited to the measurement of level of living, but the scaling problems are essentially the same for many other variables.

THE MODEL

The model used is perhaps the simpliest of those usually employed

[1]William F. Ogburn, "Population, Private Ownership, Technology, and the Standard of Living," *American Journal of Sociology*, LVI (1951), 314–319.

in level-of-living studies in the United States, except those scales for which there are no tests of validity. The logic underlying the model is essentially the same as that underlying nearly all of the procedures used in deriving level-of-living scales. The model itself may be described as follows.[2]

First, an underlying assumption is made that any measure must be identical for every case in the sample or universe of study. Thus, both the items and the cutting points would have to be the same for each culture. We shall refer to these identical measures as equal scales. To obtain an equal scale a large number of items believed, on the basis of face validity, to reflect level of living are included in the original battery of items. This procedure is the most subjective in the development of a scale. It is crucial, however, since only items included on the original battery are candidates for inclusion in the final scale.

In the case of level-of-living scales the universe of items constituting level of living is defined in terms of *(a)* the material nature of an item, *(b)* the value placed upon the possession of the item or upon a certain "level" of possession, and *(c)*, in a later step, the positive relationship of the item to other status variables, such as occupational status, income, or educational attainment. All three of these criteria must be met if an item is to be a candidate for inclusion in a level-of-living scale.

Data on possession of each of these items are obtained from a sample. Then each item is correlated with strata whose levels of living are "known." One stratum must be higher than the other. For example, in the present study in New York the external criterion for stratification into "known groups" was occupational status, while in Puerto Rico income was used. Those items which are possessed generally by the higher-status group and not possessed generally by the lower-status group are selected for the final scale. These procedures assume, first, that the items truly represent level of living and that the purpose of the scale is to obtain a measure which best distinguishes high from low level of living. Further, these procedures assume that the criterion on which the known strata are considered higher and lower validly (although crudely) reflects level of living.

A test of significance is applied to the cross tabulation of each item with the criterion, and only significantly related items may be included in the final scale. Items significantly related (or most highly related) are combined into a scale and constitute that scale. The direction and significance of these correlations test the validity which is hypothesized earlier on grounds of face validity. Obviously, this test is inadequate as a test of validity, since the validity of an item can be disproved

[2]For a more complete description of the model see Robert A. Danley and Charles E. Ramsey, *Standardization and Application of a Level of Living Scale for Farm and Nonfarm Families*, (Cornell Agricultural Experiment Station Memoir 362; Ithaca, New York, 1959).

but not proved. For example, an item may be correlated with the external criterion for some reason other than that they both reflect level of living. A positive correlation lends only "supportive" evidence, then. Nevertheless, we believe it is a more scientific procedure than the various techniques which depend solely upon the logic of internal consistency.

Some scoring device (usually one point for each item possessed or possessed at a certain level) is employed in arriving at a single score for a single family, county, or state, as the case may be.

In the present analysis each step in this procedure will be analyzed using data from two cultural settings. The problems in the use of this model will be identified. Tentative adjustments in the model will be suggested for each of the problems isolated in the standard model described above.[3]

RESEARCH PROCEDURES

The possibility of making this analysis with the benefit of empirical data is a fortuitous circumstance arising from the fact that the senior author participated in the development of level-of-living scales in New York State and in Puerto Rico in 1956. Even more advantageous was the fact that the New York and Puerto Rican studies both involved similar types of samples of open-country residents. The New York scale was developed on the basis of data obtained from 550 open-country residents selected by means of an area sample of Broome County, New York. The Puerto Rican scale was developed on an island-wide sample of 1,654 open-country residents selected by means of a stratified sample of farmers and an area sample of nonfarmers (roadside dwellers).

The original battery of level-of-living items on the schedule in the New York study was taken from extant scales, with the addition of items after a preliminary investigation of the county. Thus the original battery of items is somewhat limited to those items which have been

[3]For a different approach see Edward A. Suchman, *Methodological Problems in Comparative Research* (Princeton: Social Science Research Council, Princeton University, 1955; mimeo.). He suggests that cross-cultural analysis is the test of hypotheses within one culture which have been found to obtain within another. For this purpose, equal scales (that is, with identical items and identical levels of possession) are not necessary. Rather, items reflecting identical underlying functions have been suggested. These items would compose culturally equivalent scales. He presents the following requirements: "among the goals of comparative study, we can isolate at least three which seem to demand immediate attention: (1) The development of a set of concepts which are expected to operate, and are testable, in the several cultures which are to be analyzed comparatively; (2) the phrasing of such concepts in terminology which is defined and understood in the same way by the analysis of the several cultures; and (3) the collection of data which are relevant to these concepts and comparable in several cultures."

found to reflect differential levels of living in previous studies in the continental United States. In the Puerto Rican study, no such advantage was available. Therefore, as nearly a complete list of items in and around the house as possible was included in the interview schedule. This resulted in nearly two hundred material items. The data were collected in 1953 in Puerto Rico and in 1955 in Broome County, New York.

The Puerto Rican culture has been strongly influenced by formal and informal ties with the United States. Rural Puerto Rico still exhibits much of the Spanish-Catholic origins of the culture, however, whereas Broome County, New York, exhibits nothing of Spanish origin and extremely little of what might be called Catholic. Further, the residents of Broome County are "fringe" dwellers for the most part, and even farmers exhibit certain characteristics reflecting this influence. The differences in culture are, then, great and obvious. Whether the findings of the present analysis will be substantiated in other narrow comparisons is not known, but the problems involved are the same. It is hoped that the alternative solutions offered here may further the methodology of cross-cultural measurement.

LIMITATIONS OF THE STUDY

The purpose of the present study is to further the methodology of measurement employing culture, country, or society as the unit of analysis. For such a purpose the present data are from a sample of two. In view of this limitation, it is necessary to employ the family as the unit of analysis, with culture as a variable. Actually, there is a good reason why this approach might be used even if several cultures were available. Most scaling models assume an infinite sample, since there are always some cases for which the scale is not valid. The assumption is made that in a statistically large sample, these "invalid cases" will not seriously affect correlations between the scale and other variables. However, there is not, in actuality, a "large number of cases" in the universe of study in cross-cultural analysis. Therefore, validity of a scale for each "case" must be carefully scrutinized, and the test for validity within a culture is necessitated, using families, states, individuals, or some other "smaller" unit of analysis.

The second limitation derives from the fact that the data were not collected for the purpose of this study. As a result, the present analysis suffers a weakness in being incomplete. However, both studies were rigorous for the purposes within the culture, and therefore the data which are available for the present problem are as dependable as other studies of level of living. Twenty items were either similar or identical in the two studies. The analysis is based primarily, but not entirely, on those twenty items.

ANALYSIS

The original battery of items: The first step in the measurement of level of living using the present model is the development of an original battery of items which exhibits face validity. Each item must be material in nature and a value must be placed upon possession (or some quality of possession). Space does not permit the presentation of the entire battery of items for each of the two studies, but examples may be taken from the final Puerto Rican scale (Table 1) and from the thirteen-item New York scale (Table 2). In the section on research procedures the bases of selecting the two original batteries of items are presented. In both cases, judgments as to which responses were to be scored "high" and which "low" were made by professional sociologists intimately acquainted with the respective cultures.

Table 1. Puerto Rican level-of-living scale

Item	Scorable response*	Correlation with income†
Bed	One or more with spring and mattress	.61
Newspapers and magazines	Subscribe to one or more of either	.60
Table knives	One or more	.60
Linoleum	Possession	.58
Radio	Possession, any type	.58
Sofa	Possession	.57
Dining room table	Possession, any type	.55
Living room table	Possession, any type	.54
Bowls (china or glass)	One or more	.54
Rocking chairs	One or more	.53
Arm chairs	One or more	.53
Books	One or more	.52
Bath	Shower or porcelain tub	.52
Saucers	Five or more	.52
Platter	Possession	.51
Frying pan	Possession	.51
Cook stove	Electric, gas, or kerosene	.50
Water storage	Water pipe or filter jar	.49
Can opener	Possession	.48
Electric lights	Possession	.48
Drinking glasses	Five or more	.48
Auto or truck	Possession of either	.47

Table 1. Concluded

Item	Scorable response*	Correlation with income†
China dishes	Five or more	.46
China closet	Possession	.45
Orange squeezer	Possession, any type	.45
Refrigerator	Electric or gas	.45
Forks	One or more	.45
House exterior	Completely painted	.44
Wall or ceiling lamp	Possession	.44
Tray	Possession	.43
Dipper	Possession	.43
Kitchen knives	Two or more	.43
Wardrobe (clothes closet)	Possession	.42
Clock	Possession, any type	.42
Egg beater	Possession	.41
Sewing machine	Possession	.41
Coffee cups	Five or more	.40
Dresser	Possession	.37
Grater	Possession	.37
Toilet	Indoor toilet	.36

*Response for which a point is given.
†Phi coefficient.

A simple comparison of the two original batteries of items reveals certain common characteristics. First, all items in both cultures appear to be material in nature. Second, the response on which the value was placed seemed to be in the direction of material comfort.

The number of items is important in scaling. It is paramount that the number of items on the original battery exceed the number intended for the final scale, since some items are usually not valid. In cross-cultural analysis, the scarcity of items common to the various cultures in the study may be a serious problem. In the present analysis there were only twenty items common to the Puerto Rican and New York studies. Is this the result of methodological weakness, or is it probable that few common items could be obtained if a comparative study were purposefully designed for present purposes?

If a large number of items could be obtained from the two cultures, most of the items on the New York battery should be included in the Puerto Rican study. This follows from the fact that the Puerto Rican

Table 2. Broome County, New York, level-of-living scale

Item	Scorable responses*	Correlation with occupational status†
Washing machine	Automatic, semiautomatic, or combination washer-dryer	.36
Water supply	Inside faucets, both hot and cold water	.35
Bath	Inside, both tub and shower	.33
Separate freezer	Possession	.31
Sweeper	Electric	.31
Number of automobiles	Two or more	.31
Magazines taken	Four or more	.31
Piano	Possession	.29
Kind of clocks	Electric	.29
Pressure cooker	Possession	.28
Telephone	Possession	.28
Basement	Concrete floor	.27
Age of automobiles	Two years old or newer	.25

*Response for which a point is given.
†Phi coefficient.

battery of items was intended to be complete. Actually only about half of the items in the New York study were included in the Puerto Rican schedule.

A second approach to the problem of obtaining enough items common to the two cultures is to begin with the more complete list and determine which could have been used in New York. The face validity of most of the items would allow them to be candidates for an original battery of items in the United States. However, except in extremely low-status areas, the cutting points would need to be higher on almost every item. While this analysis is subjective, it corresponds to the procedure of formulating an original battery of items.[4]

A more rigorous test of the conclusion stated above is possible on the few items common to the two scales shown in Tables 1 and 2. The scales themselves contain five items which are similar in nature, that is, equivalent in function. These are: water supply, bath, automobiles, magazines, and clocks. However, in none of these five items

[4]A study of judges' opinions on this problem was made separately. Eight graduate students in rural sociology served as judges. Space does not permit a detailed report of the method and findings, but the conclusions presented in the text are based upon the judges' opinions.

is the definition of possession (the cutting point) the same. For example, in Puerto Rico either one automobile or truck is scored as possession, while in the New York scale a point is given only if the family owns two or more automobiles, not counting trucks. Similarly, a point is given in Puerto Rico for possession of one or more clocks of any type, while in New York it is necessary to possess one or more electric clocks. If it can be assumed that there are many cultures in which level of living is lower than in Puerto Rico, the problem of the number of common items would become more acute. It would be particularly difficult in comparing cultures with qualitative differences in material items—for example, in eating utensils in Asian and American cultures.

Correlation of each item with the criterion: The second step in the scaling model used in this analysis is the correlation of each item with the criterion. All sample units are combined. Known groups are established and each item is tested for "possession" by the high-status group and "nonpossession" by the low-status group.

The relationship between possession of a separate kitchen and occupational status, as an external criterion of known groups, illustrates this method (see Table 3). The possession of a separate room for a kitchen is a material item frequently used in level-of-living studies and therefore has face validity. A value is assumed to be placed upon having a separate kitchen. Occupational status is frequently used as a criterion of known groups. Therefore, on the basis of the significant and positive relationship observed in Table 3, the possession of a separate kitchen would be a point on an equal scale of level of living for purposes of comparing Puerto Rico and Broome County, New York.

Table 3. Relationship between place of kitchen in the house and occupational status, in combined Puerto Rican and Broome County sample

Occupational status	Place of kitchen		Total
	In separate room	Not in separate room	
White collar	111	44	155
Other	946	1,068	2,014
Total	1,057	1,112	2,169

Chi-square = 34.9. Phi = .12.

A closer look at the data on which the foregoing conclusion is reached demonstrates a pitfall in applying the standard procedure of correlating each item with a criterion for the total sample. When

culture is controlled, the relationship between the item and the criterion is different. A positive relationship is found for the Broome County sample while a negative relationship is found in the Puerto Rican sample (see Table 4). In each case, the probability that the relationship is due to chance is less than .05.

Table 4. Relationship between place of kitchen in the house and occupational status with culture controlled

Occupational status	(a) Place of kitchen in Puerto Rican homes		Total
	In separate room	Not in separate room	
White-collar	0	44	44
Other	563	1,047	1,610
Total	563	1,091	1,654
Chi-square = 23.0. Phi = −.12.			
	(b) Place of kitchen in Broome County homes		
White-collar	111	0	111
Other	383	21	404
Total	494	21	515
Chi-square = 6.0. Phi = .11.			

The problem rests partly on the question of the assumed value on possession of the item and partly on the assumed validity of the external criterion. Let us first discuss the value placed on the item. It is obvious that in Puerto Rico a status value is not placed upon the possession of a separate kitchen, because it is not positively correlated with occupational status. (The higher status of the white-collar workers within the culture was established on other evidence.)

The problem of assigning a "favorable" value to possession or to a certain quality of possession is a crucial aspect of cultural meaning of an item. In Broome County, as in most of the United States, custom dictates a separate room for the kitchen. As a result, only 4 per cent of the Broome County sample failed to have the kitchen in a separate room in the house. This 4 per cent was composed of families with extremely low status on several variables. However, in Puerto Rico, custom apparently does not attach a high status to possession of a separate room. Impressionistic data would indicate that in Puerto Rico a porch would be added to a house before a kitchen, with little

question as to preference. During the present decade, porches are being torn down in higher-status homes in many parts of New York. Few if any of the high-status homes in the Broome County sample had porches. Thus the level-of-living items must be valued, and therefore scored, in terms of the standard of living. The standard of living, as an aspirational and cultural phenomenon, is relative to place and time.

The assigning of the correct status value is tested by correlation with the known groups. Why should the nature of the difference in value placed on the separate kitchen not become evident in the standard test of Table 3? This brings us to the second assumption, namely, the validity of the external criterion. Let us attempt a more exact statement of the assumption involved in this test: the relationship between the external criterion and the items is due to status and other dimensions. It must be assumed, however, that only status is consistently present in the relationship of all the items to the known groups.

This assumption cannot be met in cases where there are other dimensions highly correlated with the status dimension. Correlations within a culture are usually low or moderate, but it is entirely plausible that in the test of cross-cultural hypotheses much higher correlations will be obtained. There is, however, a more demonstrable difficulty with the assumption stated above. High status in Table 3 is measured by white-collar work. Less than 3 per cent of the Puerto Ricans are represented in the high-status group while 22 per cent of the Broome County residents are so represented. This may be expressed in another way. Even though the Puerto Rican sample is approximately three times the size of the Broome County sample, the "high"-status group would be composed of two and one-half as many Broome County residents as Puerto Ricans. Therefore high status, as measured in Table 3, is not only high status but "mainly Broome County," and the relationship between an item and the external criterion would be due to status and any other cultural differences. Insofar as the occupational dichotomy in both cultures actually is a valid external criterion of level of living, the correlation between a given item and the known groups would partly reflect "true" level-of-living differences. The danger lies, however, in the correlation reflecting other types of cultural differences. The resulting scale might then be merely a "cultural difference" scale, but results from its use would be interpreted in terms of level of living. This, of course, would negate the assumption of face validity. Under these conditions the correlation of an item with known groups does not test face validity but only discriminating power.

A proposed solution: An alternative solution to this is offered. Rather than correlating items with known groups for the entire sample, it may be possible to compute the correlations with culture controlled. This would avoid the great overrepresentation of one of the cultures in either of the known groups.

In the present analysis, ten of the twenty items common to the two original studies were found which correlated positively with occupational status within each culture. Actually, direction of the relationship rather than statistical significance was used because of greatly skewed distributions (see Table 5).

Table 5. Items with equal cutting points which are positively correlated with occupational status with culture controlled

Item	Response scorable as high	% of Puerto Ricans possessing item	% of Broome Co. residents possessing item
Sewing machine	Electric	1	46
Refrigerator	Electric or gas	11	97
Exterior of house	Other than unpainted or partially painted frame	17	93
Kitchen stove	Electric or gas	3	93
Washing machine	Electrically powered	2	94
Iron	Electrically heated	31	98
Bathroom	Bath tub and shower	5	39
Automobile	Ownership of at least one other than truck	5	91
Pressure cooker	Possession	2	52
Toilet	Inside house	6	84

Testing the significance of items: The proposal above appears to solve the problem of obtaining some items which will correlate with the external criterion in such a way that validity may be tested for each culture, but the inability to test the significance of the relationship between each item and the criterion is a major weakness. The weakness stems from the greatly different levels being measured.

Tests of significance must be computed both for Puerto Rico and for New York, however, if the requirements of empirical testing are to be met. The analysis of the data summarized in Table 5 demonstrated that if the cutting points are sufficiently "high" to discriminate high from low status in the New York sample, there will be found too few Puerto Ricans "possessing" the item to allow tests of significance. Conversely, if the cutting points are sufficiently "low" to discriminate high from low in Puerto Rico, there will be found too few New Yorkers who fail to "possess" the item to compute a test of significance.

A proposed solution: The linear progress scale: The proposal made

in the subsequent analysis is to draw a cutting point at both levels ("low" for Puerto Rico and "high" for the New York sample), so that tests of significance may be computed for each culture. The logical requirements of the equal scale, however, demand that both cutting points be used for each culture, even though there may be no cases in one cell for one of the cultures. This is permitted in employing the chi-square test of significance according to a recent comprehensive investigation by William G. Cochran.[5] One of his conclusions was that in "tables with more than one degree of freedom and some expectations greater than five: use chi-square with correction for continuity." For continuous data, he recommends that the minimum expected frequency be one for any cell.

This procedure is illustrated with the item of sewing machine (see Table 6). The possession of the "levels" or "quality" of the item is related to the external criteria. The null hypothesis of no relationship is rejected for both cultures. The higher value placed on electric as compared to treadle and on treadle as compared to hand-powered or none is therefore inferred from the relationship and from knowledge of cost, ease of sewing, and versatility and speed of the machine.

Table 6. Relationship between sewing machine (with two equal cutting points) and occupational status with culture controlled

Occupational status	Electric	Treadle	Other	Total
(*a*) Sewing machine in Puerto Rican homes				
White-collar	2	12	30	44
Other	17	273	1,320	1,610
Total	19	285	1,350	1,654

Chi-square = 8.24.

(*b*) Sewing machine in Broome County homes				
White-collar	67	31	13	111
Other	170	150	85	405
Total	237	181	98	516

Chi-square = 12.40.

[5]William G. Cochran, "The Chi Square Test of Goodness of Fit," *The Annals of Mathematical Statistics,* XXIII (1952), 315–345.

Ten items were found to meet all of these conditions (see Table 7). These items, then, constitute what we shall call the *linear progress scale.* In each case, a test of significance was computed for each culture, which was not possible for the equal scale presented in Table 5.

Table 7. Items with two equal cutting points which are significantly and positively correlated with occupational status with culture controlled

Item	Response scorable as "high"	Response scorable as "medium"	Response not scorable
Washing machine	Automatic, semiautom., comb. automatic washer-dryer	Power	Other
Kitchen stove	Electric or gas	Kerosene	Other
Sewing machine	Electric	Treadle	None
Bathroom	Shower and porcelain tub	Shower or porcelain tub	Other
Iron	Steam or automatic	Electric	Other
Toilet	Indoor toilet	Outside latrine	Other
Auto	Two or more	One	None
Water supply	Faucets inside house hot and cold	Water piped	Other
Clock	Electric	Mechanical	None
Refrigerator	Electric or gas	Icebox	None

In a substantive study, these items could be added to those items on the equal scale for which a test of significance could be computed.

The scoring of such a scale requires that some type of differential recognition of the "advanced" response be given. For illustration, a family which has neither an outside latrine nor an indoor bathroom would not be given a point in either culture. A family having an outside latrine only would be given, say, a point and a family having an indoor toilet would be given, say, two points. Actually a more sophisticated device of weighting responses could be employed, based on procedures developed for weighting items.

In cross-sectional research, the weighting procedure has a fair amount of warranty. In research on change, this weighting procedure would require the assumption that any given item goes through a linear progression identical in all cultures involved in the study. For example, it must be assumed that as level of living increases, the higher-status

families will first purchase items at the "medium" level and subsequently at the "high" level. In other words, all cultures involved in the study must be assumed to pass through the same stages or levels on every item. This theoretical assumption requires an intimate knowledge of each item in relation to each culture because of the cyclical nature of the status value of many items, witness antiques.

Scoring: The linear progress scale may be used to score cultures, per se, on level of living. Either mean scores of a sample of families in each culture or a standard percentage score may be employed. In the percentage scoring, the lowest level of living would exist in a culture in which 100 per cent of the families were in Column 3 of Table 7, or "low." The highest level of living would exist in a culture where all families were in Column 1 of Table 7 or "high." Let us range the scores from 0 to 1.000. The "high" level will be weighted arbitrarily as having twice the value of the "medium" level. Therefore, a culture in which all of the families possessed an item at the "medium" level would reach half its potential score. Thus its score would be .500.

By this method (and for these few items) Puerto Rico would have a score of .157 while Broome County would have a score of .748. Compared to the same standard scoring on the equal scale presented in Table 5, the linear progress scale gives the Broome County sample approximately the same score. However, the score for Puerto Rico is nearly double that found for the previous equal scale, because the linear progress scale recognizes intermediate "stages" in level of living.

CONCLUSIONS

The research problem was to determine the adjustments which would need to be made in a simple model of the measurement of variables when this model is applied to the cross-cultural comparison of level of living. The requirement is that a scale must be equal in both items and cutting points for each culture in the analysis. The comparison was made for only two cultures, Puerto Rico and Broome County, New York.

The first step in the model is the development of an original battery of items which have face validity. It was demonstrated that, for the two cultures involved, several items could be found which appeared to be the same in meaning. Likewise, the value placed on types of possession seemed to be in the same direction, namely, toward material comfort and ease. The greatly different levels of the two cultures would produce a problem in obtaining cutting points which were identical between the cultures but meaningful in each. It was suggested that "high" types of possession be included even though there would be extremely few cases to reach this level in the "lower" cultures; and, conversely, that "low" types of possession be included even though there would be extremely few cases at this level in the "higher" cultures. It was

later demonstrated that this procedure was feasible under the concept of the linear progression of items.

A second problem appeared in testing the relationship of items to external criterion groups. Since the external criterion is assumed to be a valid although crude measure of the variable being scaled, the greatly different levels among cultures will produce overrepresentation of "higher" cultures in the "high" known group and vice versa. It was suggested that culture be controlled in testing these relationships, since it does not violate the logic of the test.

A third problem appeared in these tests, namely, that the skewed distribution produced so few cases in some rows or columns when culture is controlled that tests of significance were not possible. The solution to this problem was proposed in the assumption of the linear progression of any item through certain intermediate stages or levels of possession. By interposing an intermediate stage it was possible to test significance in each culture.

The problem of scoring then must take into account the different levels represented by low, intermediate, and high levels of possession. It was proposed that weights be assigned according to some procedure previously developed. For purposes of illustration, arbitrary weights were assigned in which the "low" level of possession was given no point, and the "high" level of possession was assigned twice the weight given to the "medium" level. Then a score was developed based on the definition that the lowest score was for the case where all families in a culture possessed the "low" level of all items and the highest score was for the case where all families in a culture possessed the "high" level of all items.

The problems and tentative solutions offered in the analysis need further study. Two of these are especially important for future research:

1. In the present analysis, it appears that a sufficiently large number of items are available to develop a scale. However, as more cultures are added, the number of items common to all cultures in a study may become more seriously limited. Thus a very narrow segment of the variables in each culture is being measured.

2. The use of the model presented in the present paper depended, in the final analysis, upon the assumption of the linear progression of items. Intensive study needs to be directed at whether this assumption can be made, or whether a circular (or some other) pattern of change in usage occurs in a significant proportion of material items.

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Demographic Characteristics of the United States-Mexican Border

This paper attempts to describe and to summarize by means of a typological analysis the salient characteristics of the population in the United States–Mexican border area. The area under focus consists of the five southwestern states for which data on Spanish surnames were available and the six Mexican states adjacent to the international boundary. Distributions of Spanish surname persons are plotted for cities and minor civil divisions in the five southwestern states. The populations on both sides of the border are examined with respect to selected attributes. Demographic comparisons are made between Spanish surname and non-Spanish surname populations of the five southwestern states. This is followed by a typological analysis summarizing the characteristics of the relevant populations.

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PREFACE

THIS descriptive analysis of the demographic characteristics of the United States-Mexican border forms a basic part of a larger study of the processes of boundary maintenance and systemic linkage of nations as social systems. The data here presented have been invaluable in planning various studies which are now under way or anticipated

concerning the United States-Mexican border—for example: studies of migrants returning to Sonora from the United States by William H. Form and Julius Rivera, and the study of the cultural impact of Anglo and Latino systems upon students in the border cities of El Paso and Juarez by Frank Nall; studies of the linkages among community, ethnic, and health systems as exemplified by decision making of influentials of each system, and analyses of activities and national images of influentials in business and politics, in El Paso and Juarez by William D'Antonio and William H. Form, in San Diego by Aubrey Wendling, in Tijuana by Orrin E. Klapp and L. Vincent Padgett, in Tucson by Jim Officer and Edward Spicer, in Las Cruces by Sigurd Johansen and Laiten Camien, in Denver by Robert C. Hanson, in Dallas by Hiram Friedsam and Harry Dick, and in McAllen by Ivan C. Belknap and Frank and Elizabeth Nall; studies dealing with the social aspects of disaster in two Rio Grande floods, including those by William H. Form, Harry E. Moore, Roy A. Clifford, Ellwyn Stoddard, and Arturo DeHoyos; studies of the aspirations of Mexican migrants in the United States by Archie Haller and Arturo DeHoyos; and studies of the differential impact of Anglo and Latino societies upon Mennonites and Amishmen, including those by Carl Jantzen and Calvin Redekop.

Of course, the analyses and descriptions in this monograph have been most helpful to William D'Antonio, Eugene C. Erickson, Clyde R. McCone, and others who have the responsibility of integrating the various findings. It is hoped that the findings and methodology developed in this monograph will be as useful to others as it has been to those working on the projects now under way.

CHARLES P. LOOMIS

INTERNATIONAL border areas often represent unusually fine settings in which to investigate sociological problems attending the interaction of different cultural or nationality groups. Insofar as international boundaries separate markedly diverse peoples, sociological inquiry may encompass an extremely wide range of problems. Questions of cultural interchange, minority relations, and the social and demographic attributes of the contacting groups come to mind at once. This paper is concerned with the demography of an international border area, namely, that separating the United States and Mexico. It is regarded as a case study in microdemography[1] in which arbitrarily drawn segments of two nations are studied. The purposes of this paper are (1) to show the distribution of Spanish surname population in

[1]See Donald J. Bogue, "Micro-Demography," in Donald J. Bogue, ed., *Applications of Demography; The Population Situation in the U.S. in 1975* (Miami: Scripps Foundation for Research in Population Problems, 1957) pp. 46–52. While the area encompassed in this study is large and may appear to be regional demography, the units used are counties and *municipios*.

the five southwestern states, (2) to describe salient characteristics of the population on both sides of the United States-Mexican border, (3) to examine additional attributes of the population in the six adjacent Mexican states, (4) to describe the differing characteristics of Spanish surname and non-Spanish surname populations in the five southwestern states, and (5) to summarize the demographic character of the two groups in the southwestern states by means of a typological analysis.

DEFINITIONS AND SOURCES OF DATA

The terms "border" and "border area" have no precise, commonly agreed upon sociological meanings. The terms imply the existence of political boundaries and spatial dimensions, but the extent of the latter and the requirement of contiguity are not made explicit in the literature. While contiguity to the international boundary is implied by the notion of border area, the "effective" border area may be determined by traffic routes, terrain, mode of travel, customs, and many other elements. If border area is taken to mean the arena of initial meeting and interaction of nationality groupings, New York City would fulfill the requirement for most Puerto Rican migrants to the United States. In the case of Mexico and the United States, the southwestern border states supply the locus of initial interaction for Mexican migrants. The border states on the Mexican side play the same role to a lesser degree for American tourists and others, mainly because a large proportion of travelers going into Mexico fly directly to the capital city.

The definitions of border and border area as used in this study now will be made explicit. The border, in this instance the United States-Mexican border, is the political boundary separating the two countries. The border area is arbitrarily defined as comprising the adjacent tier of Mexican states and the adjacent American states plus Colorado.[2]

This study deals with a number of populations for which precise descriptions and definitions are required. The population aggregates used in this study are (1) Mexicans, or those enumerated in the Mexican census and resident in any or all of the six Mexican border states; (2) the Spanish surname population, enumerated in the United States census of population and resident in any, all, or selected counties in the five southwestern states; (3) the non-Spanish surname population, a residue obtained by subtracting the relevant categories obtained for the five southwestern states; and (4) the total population (including

[2]The Mexican territories considered as border area states are Baja California, T.N., Chihuahua, Coahuila, Nuevo León, Sonora, and Tamaulipas. At most points, these states extend well over 200 miles into Mexico. The American states include Arizona, California, Colorado, New Mexico, and Texas. Colorado is included because of the large Spanish population and because data for Spanish surname population were tabulated by the Bureau of the Census for this state as well as the states adjacent to the border.

Spanish surname and non-Spanish surname populations) for any or all of the five southwestern states. Of these categories, only the Spanish surname population requires further comment.

The identification of persons having a Spanish surname represents an innovation of the 1950 census and was intended to serve the same purpose as statistics on persons of "Spanish mother tongue" in the 1940 census and those on "Mexicans" in the 1930 census. Persons of Spanish surname were identified by trained coders on the basis of a list of some 6,000 Spanish surnames compiled by the Immigration and Naturalization Service. Each of the methods used in the past by the Census Bureau to identify the Spanish or Mexican-American population of the United States has limitations. Surnames, it should be noted, are not precise indicators of national origin but are only highly correlated with national origin.[3]

The population of the Southwest being identified in the use of Spanish surnames is ethnically diverse. Those possessing Spanish surnames, for example, include recent immigrants from Mexico as well as the Spanish colonial peoples who settled as early as the sixteenth century in New Mexico, California, and Texas. Ethnically the group identified would include Indians, persons of unmixed Spanish ancestry, mestizos, Mexicans, and Mexican-Americans.[4]

The major sources of data upon which this investigation is based are the official census publications of the United States and Mexico. The most useful single volume is the special report entitled *Persons of Spanish Surname*. In addition, unpublished tabulations showing the number, nativity, country of birth, and citizenship of the Spanish surname population by minor civil divisions were purchased from the Census Bureau. Except for summary tables and other selected data based on a complete count, most of the data are based upon a 20 per cent sample for the five southwestern states.[5]

[3]The 1950 approach in which persons of Spanish surname were identified yields substantially more Spanish-American persons in all southwestern states. Thus, the definition of "Mexican" in 1930 in the five states yielded a total of 1,282,883; the definition of "Spanish mother tongue" yielded 1,570,750; and the definition of "Spanish surname" yielded 2,281,710. See U. S. Bureau of the Census, *U. S. Census of Population, 1950*, Vol. IV, *Special Reports, Part III, Chapter C: Persons of Spanish Surname*, p. 6 (Washington: Government Printing Office, 1953).

[4]For a more detailed discussion see *ibid.*, pp. 4–6; and Robert H. Talbert, *Spanish-Name People in the Southwest and West* (Fort Worth: Leo Potishman Foundation, 1955), ch. i.

[5]U. S. Bureau of the Census, *U. S. Census of Population, 1950*, Vol. II, *Characteristics of the Population* (Washington: Government Printing Office, 1952); the following states were used: Arizona, California, Colorado, New Mexico, and Texas. Also *Septimo censo general de población* (Mexico, D.V.F.); the following state volumes were used: Baja California, Territorio Norte, 1952; Estado de Chihuahua, 1952; Estado de Coahuila, 1952; Estado Nuevo León, 1953; Estado de Sonora, 1953; and Estado de Tamaulipas, 1953.

PATTERNS OF DISTRIBUTION IN RELATION TO THE BORDER

The primary concern of this section is to show the number and distribution of Spanish surname people in the five southwestern states. Some attention, however, is given to nativity and citizenship, on both sides of the border.

The number and percentage of persons born in foreign countries, of aliens, and of persons having a foreign mother tongue in the six Mexican states are shown in Table 1. The largest numerical concentrations of these groups are found in the state of Chihuahua, but the largest percentages of these groups are found in Baja California, T.N. For the Mexican border states as a whole, less than 2 per cent of the population were born in foreign countries, less than 1 per cent were classed as aliens, and slightly over 1 per cent spoke a foreign mother tongue. The largest single concentration of foreign-born persons in the six border states is in the Municipio of Juarez, located across the Rio Grande from El Paso, Texas.

Table 1. Foreign-born persons, aliens, and persons speaking a foreign mother tongue, for the Mexican border states, 1950*

Mexican border states	Born in foreign countries		Aliens		Foreign mother tongue†	
	No.	%	No.	%	No.	%
Total, 6 Mexican states	72,238	1.9	30,789	0.8	34,038	1.1
Baja Calif. T. N.	12,650	5.6	4,624	2.0	6,376	3.3
Chihuahua	21,017	2.5	13,042	1.5	17,360	2.4
Coahuila	8,550	1.2	3,714	0.5	2,580	0.4
Nuevo León	8,209	1.1	2,472	0.3	2,468	0.4
Sonora	5,366	1.1	2,160	0.4	2,003	0.5
Tamaulipas	16,446	2.3	4,777	0.7	3,251	0.5

**Septimo censo general de población,* Tables 5 and 6 in individual territory volumes (Mexico, D. F.).

†The "mother tongue" data apply to those over five years of age.

The percentage distribution of the Spanish surname population, by nativity and citizenship, is shown in Table 2. For the five southwestern states as an aggregate, nearly 83 per cent of the Spanish surname people were born in the United States, 16 per cent were born in Mexico, and slightly over 1 per cent were born in other foreign countries. The largest percentages of native-born Spanish surname peoples were report-

ed for New Mexico (96.1 per cent) and Arizona (95.7 per cent). The smallest proportion of native-born (or the largest proportion of foreign-born Spanish surname people) was reported for California (78.2 per cent native-born).

Table 2. Citizenship and country of birth of white persons of Spanish surname, for the five southwestern states, 1950 (in per cent)*

South-western states	Total	Native-born	Foreign-born			Country of birth	
			Natu-ralized	Alien	Not reported	Mexico	Other foreign coun-tries
Total, 5 southwestern states	100.0	82.9	4.2	11.6	1.4	16.0	1.2
Arizona	100.0	82.1	5.1	11.3	1.5	17.3	0.7
California	100.0	78.2	5.6	14.5	1.7	19.1	2.7
Colorado	100.0	95.7	1.2	2.7	0.4	3.7	0.6
New Mexico	100.0	96.1	1.1	2.3	0.5	3.6	0.3
Texas	100.0	81.8	4.2	12.6	1.4	17.9	0.3

*U. S. Bureau of the Census, *U. S. Census of Population, 1950*, Vol. IV, Part III, *Persons of Spanish Surname*, Table 1 (Washington: Government Printing Office, 1953).

The numbers and percentages of Spanish surname people, by nativity, for cities having a Spanish surname population of ten thousand or more are shown in Table 3. The variation in percentages of native-born persons in the cities listed is very great, ranging from 70.9 per cent in San Francisco to 99.1 per cent in Santa Fe. The proportions shown in Table 3, of course, are closely related to recency of migration.

Figures 1 through 5 in the Appendix show the number and distribution of Spanish surname population by minor civil division for each of the five southwestern states. Towns and cities are represented by globes, the sizes of which are in proportion to the total number of Spanish surname persons. The rural population is represented by dots.

Figure 1 shows the distribution of the 128,318 Spanish surname persons in Arizona in 1950. As indicated by this figure, Tucson with 10,964 and Phoenix with 10,452 Spanish surname persons have the largest Spanish surname populations. Further, the major areas of Spanish concentration are those in the vicinity of these two centers.

Table 3. Country of birth of white persons of Spanish surname for cities having 10,000 or more white persons of Spanish surname, 1950*

City & state	Total		Native-born		Foreign-born			
					Mexico		Other foreign countries	
	No.	%	No.	%	No.	%	No.	%
Arizona								
Phoenix	10,452	100.0	9,019	86.3	1,318	12.6	115	1.1
Tucson	10,964	100.0	8,952	81.6	1,937	17.7	75	0.7
California								
Los Angeles	157,067	100.0	119,620	76.2	34,061	21.7	3,386	2.1
Oakland	16,466	100.0	14,041	85.3	1,763	10.7	662	4.0
San Bernardino	10,768	100.0	8,598	79.8	2,115	19.6	55	0.6
San Diego	15,490	100.0	12,078	78.0	3,107	20.1	305	1.9
San Francisco	31,433	100.0	22,279	70.9	4,342	13.8	4,812	15.3
San Jose	10,857	100.0	9,378	86.4	1,309	12.1	170	1.5
Colorado								
Denver	24,950	100.0	23,969	96.1	815	3.3	166	0.6
New Mexico								
Albuquerque	24,254	100.0	23,740	97.9	399	1.6	115	0.5
Sante Fe	16,492	100.0	16,344	99.1	92	0.6	56	0.3
Texas								
Austin	11,879	100.0	10,554	88.8	1,279	10.8	46	0.4
Brownsville	25,036	100.0	20,667	82.5	4,281	17.1	88	0.4
Corpus Christi	36,501	100.0	32,846	90.0	3,568	9.8	87	0.2
El Paso	63,976	100.0	45,802	71.6	17,856	27.9	318	0.5
Harlingen	11,080	100.0	8,300	74.9	2,752	24.8	28	0.3
Houston	34,363	100.0	28,732	83.6	5,381	15.7	250	0.7
Laredo	44,463	100.0	33,894	76.2	10,431	23.5	138	0.3
McAllen	11,462	100.0	8,779	76.6	2,647	23.1	36	0.3
San Antonio	160,420	100.0	135,760	84.6	24,025	15.0	635	0.4

*U. S. Bureau of the Census, *U. S. Census of Population, 1950*, Vol. IV, Part III, *Persons of Spanish Surname*, Table 7 (Washington: Government Printing Office, 1953).

Approximately 70,000 Spanish surname people are located in the towns and rural areas of the counties in which Tucson and Phoenix are situated.

Figure 2 shows the distribution of the 760,453 persons having Spanish surnames in California. Six cities in the state have at least 10,000 Spanish surname persons. These are, in order of numbers, Los Angeles (157,067), San Francisco (31,433), Oakland (16,466), San Diego (15,490), San Jose (10,857), and San Bernardino (10,768). Other California

cities having a Spanish surname population of between five and ten thousand include Brawley, East Bakersfield (unincorporated), Fresno, Oxnard, Riverside, Sacramento, Santa Ana, Santa Barbara, and Stockton. In addition to such prominent areas of concentration as Los Angeles and San Francisco, the San Joaquin Valley has large numbers, particularly of rural Spanish surname people.

Figure 3 shows the distribution of Colorado's 118,131 Spanish surname population in 1950. Denver, the major city of the state, had 24,950 Spanish surname people, the largest concentration in the state. Pueblo ranked second to Denver with 9,826. The only other major urban population was Trinidad with 4,671. As Figure 3 clearly shows, the two major concentrations of Spanish surname people outside the cities named are the south-central area and the area north of Denver.

Figure 4 depicts the spatial distribution of the 248,880 Spanish surname people in New Mexico. Those urban places having the largest numbers are Albuquerque (24,254), Santa Fe (16,492), and Las Cruces (5,998). A large proportion of all Spanish surname people in this state, including the rural population, is located in the north central area in the vicinity of Albuquerque and Santa Fe.

Figure 5 (in two parts) shows the distribution of 1,033,768 Spanish surname people in Texas. The largest single aggregate of Spanish people is found in San Antonio (160,420). San Antonio is followed by El Paso (63,976), Laredo (44,463), Corpus Christi (36,501), Houston (34,363), and Brownsville (25,036). In addition to these cities, Austin, Harlingen, and McAllen had over 10,000 Spanish surname people in 1950. The following had between 5,000 and 10,000 in 1950: Alice, Dallas, Del Rio, Edinburg, Fort Worth, Galveston, Kingsville, Mercedes, Mission, San Angelo, and San Benito. Figure 5 shows the heavy concentration of Spanish surname population in south and southeastern Texas. This is particularly true of the rural population. Two border counties at the southern tip of Texas, Cameron and Hidalgo Counties, contain nearly 200,000 persons having Spanish surnames. Neither of these counties has a large city.

CHARACTERISTICS OF POPULATION ON BOTH SIDES OF THE UNITED STATES–MEXICAN BORDER

This portion of the paper is devoted to an examination of the distribution of selected demographic indexes on both sides of the United States-Mexican border. The indexes used include age and sex composition, educational level, fertility ratio, and population change. While certain variations in accuracy are doubtless inherent in the data, these indexes were selected because the form of the data makes them directly comparable for both countries. The emphasis in this portion of the paper is limited to (1) a characterization of the relevant American

and Mexican populations with respect to the indexes enumerated below, (2) a comparison of the two populations as to these indexes, and (3) observations concerning apparent patterning of the indexes in relation to the international boundary.

Age and sex composition: The American and Mexican populations under scrutiny exhibit sharp differences in age structure, as shown in Table 4. The comparative youth of the population in the adjacent Mexican states in relation to that of the five southwestern states is evident. Each of the Mexican states has larger proportions under 20 years of age and smaller proportions over 20 than any of the southwestern states.

Among the Mexican states, Nuevo León, in which the large center of Monterrey is located, exhibits an age structure most similar to that of the American states. Baja California, T.N., is most deviant from the Mexican norm in age composition due to the large proportion in the age group 20 to 49, a consequence of recent heavy in-migration. Of the American states, the age structure of New Mexico departs most radically from that of the remaining four states.

The age data for counties and *municipio* units reveal clear-cut patterns in relation to the international boundary. See Appendix Figures 6, 7, and 8, which show the age group under 5, 20 to 49, and 50 and over, plotted by county and *municipio* units. These patterns are most evident in regard to the age groups under 5 and 20 to 49. Most of the counties having large proportions under 5 are located near the United States-Mexican border. On the Mexican side, the more distant, least urbanized *municipios* generally show the highest proportion of young persons. With few exceptions, counties adjacent to or near the international boundary, particularly those at points of entry, contain large proportions between 20 and 49. On the Mexican side, those *municipios* near the boundary and especially those at points of entry, exhibit large proportions 20 to 49. This suggests the possibility of a "piling up" of economically productive aged persons both seeking entry and subsequent to entry.

The sex ratios for the populations under consideration are shown in Table 4 and Appendix Figure 9. The average for each group of states, it will be noted, is approximately the same. The sex ratios for California, Colorado, and Texas are lowest (only slightly above 100), while the ratios for Arizona and New Mexico are considerably above 100. The states of Chihuahua, Sonora, and Tamaulipas are characterized by ratios slightly over 100, Coahuila and Nuevo León by ratios below 100. Baja California, T.N., on the other hand, exhibits a very large "excess" of males.

No pattern regarding size of the sex ratio in relation to the international boundary is evident from an examination of county and

Table 4. Age distribution, sex ratios, fertility ratios, percentages having no schooling, and per cent change in population, 1940–1950, for Mexican border states and southwestern states, 1950*

Mexican border states & southwestern states	% age distribution				Sex ratio	Fertility ratio†	% 25 & over reporting no school yrs. completed	% change in population, 1940–50
	Under 5	5–19	20–49	50 and over				
Total, 6 Mexican states	15.1	36.6	37.7	10.6	100.1	674	25.8	43.7
Baja Calif., T.N.	16.0	33.2	41.1	9.6	107.3	720	16.9	187.7
Chihuahua	15.3	37.7	37.0	10.0	100.2	685	26.5	35.7
Coahuila	15.3	36.7	36.8	11.1	99.1	695	27.2	30.9
Nuevo León	14.7	36.2	37.9	11.2	98.0	647	24.0	36.8
Sonora	15.0	36.4	38.1	10.4	100.4	666	27.2	40.2
Tamaulipas	15.0	36.3	38.2	10.5	100.7	662	27.5	56.5
Total, 5 southwestern states	11.1	22.8	44.9	21.2	100.4	486	2.1	36.0
Arizona	12.4	27.1	42.6	17.8	102.3	546	5.5	50.1
California	10.4	20.1	46.2	23.3	100.1	456	1.8	53.3
Colorado	11.2	23.6	42.7	22.5	100.8	504	1.6	18.0
New Mexico	13.9	29.3	41.9	14.9	104.2	620	6.0	28.1
Texas	11.7	25.2	44.2	18.9	100.4	506	4.3	20.2

**Septimo censo general de población,* Tables 1, 2A, 2B, 2C, 8, and 25 in individual territory volumes (Mexico, D. F.); and U. S. Bureau of the Census, *U. S. Census of Population, 1950,* Vol. IV, Part III, *General Characteristics for Selected States* (Washington: Government Printing Office, 1953).

†For purposes of this study the fertility ratio is the number of children under 5 per 1,000 females aged 15 to 44.

municipio data plotted in Figure 9. The level of the sex ratio appears to be most closely related to the degree of rurality and position with respect to urban centers.

Level of schooling: Only a single index, the percentage of the population 25 and over completing no schooling, is examined here. (See Table 4 and Appendix Figure 10.) The proportion of the adult population 25 and over having had no schooling is relatively small in the southwestern states and relatively large in the Mexican states. The range is from 1.6 per cent in Colorado to 6.0 per cent in New Mexico and from 16.9 per cent in Baja California, T.N., to 27.5 per cent in Tamaulipas. Counties near the United States-Mexican border as well as those containing large Spanish surname populations show the highest percentages having no schooling. On the Mexican side of the border, the lowest proportions of persons without schooling are found in *municipios* near the international boundary.

Level of fertility: In accordance with expectation, fertility ratios, unadjusted for age distribution, are high in the Mexican states as compared with the American states. (See Table 4 and Appendix Figure 11.) Fertility ratios range from 647 in Nuevo León to 720 in Baja California, T.N., and from 456 in California to 670 in New Mexico. It is evident from Appendix Figure 11 that counties of southern Texas, most of the counties of New Mexico and Arizona, and some counties of Colorado have high fertility ratios. In general, those counties located near the international boundary exhibit high fertility. On the Mexican side of the border, great variations in the level of fertility from one *municipio* to another are evident. At the same time, those *municipios* adjacent to or near the international boundary are not often characterized by the highest fertility.

Per cent change in population: As shown in Table 4, both the southwestern states and the Mexican states exhibited rapid growth in the 1940–1950 period. Colorado grew least rapidly and California grew most rapidly in this decade. On the Mexican side, Coahuila experienced the smallest percentage increase while Baja California, T.N., experienced the largest percentage increase. Variations in rate of gain among the counties in the southwestern states seemed closely related to the presence of urban places. (See Appendix Figure 12.) Counties in which medium or large centers were located in most instances showed high rates of gain. Among the *municipios,* those located in Baja California, T.N., in portions of Sonora, and at points of entry to the United States exhibited the most rapid increases during the decade. *Municipios* located adjacent to such points of entry as Brownsville, Laredo, and El Paso were in the highest rate of gain category.

SELECTED DEMOGRAPHIC INDEXES ON THE MEXICAN SIDE OF THE BORDER

This portion of the paper examines selected demographic attributes for the six Mexican states bordering the United States. The analysis is restricted to an examination of internal variations among the states and to fluctuations in the attributes selected in relation to the international boundary. The data presented are in two forms, summary tables and maps plotted on a *municipio* basis. The attributes selected for analysis are grouped under the following headings: residence, dependency ratio, marital status, illiteracy, labor force and type of employment, housing, population change and migration, and other characteristics.

Residence: As a whole, the six border states included in this study are slightly more urban than rural. (See Table 5.) Urban places, according to the Mexican census, are those having 2,500 or more population. The most urban of the states is Baja California, T.N., with 65 per cent urban and 36 per cent rural. The two border cities of Mexicali and

Tijuana in this state are largely responsible for this high percentage of urbanity. The states of Coahuila and Nuevo León, with 57 per cent and 56 per cent urban population, respectively, rank next in order. In the former, Torreón and Saltillo in the interior and Piedras Negras on the border are the leading urban places; in the latter Monterrey, the metropolis of the six border territories, is located. Tamaulipas, the state bordering the Gulf of Mexico, is 53 per cent urban. In addition to the more distant centers of Tampico and Victoria, this state contains Matamoros, Reynosa, and Nuevo Laredo, all of which are located on the border. Sonora and Chihuahua are the least urban of the border states, with 45 per cent and 44 per cent urban population, respectively. The largest urban centers of Sonora, including Hermosillo, are inland. Nogales, a substantial center, is the largest city of Sonora located on the border. The two major cities located in Chihuahua are Juarez, located across the border from El Paso, and Chihuahua, located in the center of the state.

Table 5. Urban and rural residence for the Mexican border states, 1950*

Mexican border states	Total population		Urban		Rural	
	No.	%	No.	%	No.	%
Total, 6 Mexican states	3,762,963	100.0	1,959,342	52.1	1,803,621	47.9
Baja Calif. T.N.	226,965	100.0	146,391	64.5	80,574	35.5
Chihuahua	846,414	100.0	373,357	44.1	473,057	55.9
Coahuila	720,619	100.0	413,978	57.4	306,641	42.6
Nuevo León	740,191	100.0	413,911	55.9	326,280	44.1
Sonora	510,607	100.0	231,424	45.3	279,183	54.7
Tamaulipas	718,167	100.0	380,281	53.0	337,886	47.0

**Septimo censo general de población,* Table 25 in individual territory volumes (Mexico, D. F.).

The distribution of the rural population by *municipio* units is shown in Appendix Figure 13. Some tendency may be observed for those *municipios* adjacent to or near the border to contain relatively small proportions of rural population. This is particularly true at the major points of entry to the United States. A large portion of the inland *municipios* located in Chihuahua and Tamaulipas, it can be noted, are lacking a center having 2,500 or more population.

Dependency ratio: Since the age structure and the sex composition have been examined previously, the discussion here is limited to a brief examination of the dependency ratio. The dependency ratio (the

number of dependents under 12, and 65 and over, per thousand nondependents of known age) of 593 for the six states as a whole is closely related to the level of the birth rate and selective migration. Baja California, T.N., has the smallest number of dependents in relation to nondependents (563), while Coahuila has the largest number of dependents in relation to nondependents (613).

Figure 14 shows that the urban areas and those *municipios* located on the border generally are characterized by low dependency ratios. This may be explained largely by the relatively lower birth rates in these areas and by the selective in-migration of economically productive aged persons.

Marital status: Marital status in the Mexican census is obtained for males 16 years and over and females 14 years and over. This population is then classified by marital status at the time of census enumeration. As shown in Table 6, the marital status categories are single, married (civil law only), married (religious ceremony only), married (both civil and religious ceremony), "free union," widowed, and divorced. Two of these categories—per cent of married, civil law only, and per cent living in free union—have been selected for plotting on a *municipio* basis. (See Figures 15 and 16.)

Table 6. Marital status for the Mexican border states, 1950 (in per cent)*

Mexican border states	Total (males 16 & over plus females 14 & over)	Single	Married (civil law only)	Married (relig. ceremony only)	Married (both civil & relig. cer.)	Free union	Widowed	Divorced	NA
Total, 6 Mexican states	100.0	30.5	18.2	2.0	29.3	8.3	6.6	0.6	4.5
Baja Calif., T.N.	100.0	30.1	18.3	2.3	27.9	9.9	6.0	0.9	4.6
Chihuahua	100.0	30.8	12.6	2.5	34.2	7.9	6.4	0.6	5.0
Coahuila	100.0	28.5	16.1	1.9	34.3	6.9	7.0	0.7	4.6
Nuevo León	100.0	31.2	18.4	1.2	32.9	4.7	6.4	0.5	4.7
Sonora	100.0	33.0	20.4	2.4	20.8	12.1	6.7	0.6	4.0
Tamaulipas	100.0	30.0	24.9	1.9	21.4	10.8	7.0	0.6	3.4

**Septimo censo general de poblacion,* Table 4 in individual territory volumes (Mexico, D. F.).

As shown in Table 6, less than one-third (30.5 per cent) of the population of males 16 and over and of females 14 and over are single. This proportion is smallest in Coahuila (28.5 per cent) and largest in Sonora (33.0 per cent). The proportions classed as married in civil

ceremonies only are highest in Tamaulipas (24.9 per cent) and lowest in Chihuahua (12.6 per cent). The percentages married in religious ceremony range from 1.2 per cent in Nuevo León to 2.5 per cent in Chihuahua. The proportions married in both civil and religious ceremonies range from a low of 20.8 per cent in Sonora to a high of 34.3 per cent in Chihuahua. The percentage of persons living in "free union" accounts for an average of 8.3 per cent in the six states, but ranges from 4.7 per cent in Nuevo León to 12.1 per cent in Sonora. The proportions widowed and divorced average 6.6 per cent and 0.6 per cent respectively, and vary relatively little from state to state.

The internal variations in the percentages of persons married in civil ceremony only, as shown in Figure 15, are very great. The proportions married in civil ceremony only appear no higher in the urbanized *municipios* than in the less urbanized *municipios*. Some of the highest proportions married in civil ceremony only, however, are located near the international boundary, especially in Coahuila, Nuevo León, and Tamaulipas.

The prevalence of persons living in free union, shown in Figure 16, generally shows increases with distance from the United States-Mexican border. This is particularly evident in the states of Tamaulipas, Chihuahua, and Sonora.

Illiteracy: Approximately one-fourth (24.8 per cent) of all persons five years old and over in the six border states were reported illiterate in 1950. Illiteracy ranged from a low of 18.7 per cent in Baja California, T.N., to a high of 26.9 per cent in Chihuahua and Sonora. Appendix Figure 17 shows the *municipios* with the highest illiteracy rates to be located in the interior areas, particularly of Chihuahua, Sonora, and Nuevo León. Lowest illiteracy rates tend to be reported for *municipios* located near the United States-Mexican border.

Labor force and type of employment: An examination of the economically active population of the Mexican border states is limited to percentages of males and females reported as "economically active," and distribution of persons employed in various occupations.[6] For the six border states, nearly 49 per cent of all males and females 12 and over were reported as economically active. This proportion was lowest in Chihuahua (47.8 per cent) and highest in Baja California, T.N., (51.4 per cent). For males 12 and over, approximately 86 per cent were reported to be economically active. The range for the various states was slight. For females 12 and over, nearly 12 per cent were economically active, the range being 10.6 per cent in Chihuahua to 13.6 per cent

[6]By law, the labor of persons under 12 cannot be contracted for. Hence, persons of both sexes under 12 are excluded in the counts concerning labor force. Economically active persons are those who stated they had an office, profession, or paid occupation, or were unpaid family workers, whether or not they worked at the time of the census.

in Baja California, T.N. Local differences among the *municipios* are marked, as shown in Appendix Figure 18, but there is no apparent pattern in the proportions of economically active persons in relation to the United States-Mexican border.

The distribution of the labor force by type of occupation for the six border states is summarized in Table 7. Appendix Figures 19 and 20 show the proportions employed in agriculture, forestry, hunting and fishing, and in manufacturing, for the *municipios*. As shown in Table 7, agriculture and related occupations account for half of the employed in the six Mexican states. This is followed by those employed in manufacturing (11.7 per cent), services (11.5 per cent), and commerce (9.8 per cent).

The most highly agricultural states are Chihuahua and Sonora, while Nuevo León, the state in which Monterrey is located, is least agricultural. In general, those *municipios* most heavily dominated by agriculture and agriculturally related occupations are located some distance from the border. (See Appendix Figure 19.) As one would expect, the largest proportion employed in manufacturing is found in Nuevo León (18.4 per cent). Sonora and Tamaulipas have the smallest proportions employed in manufacturing (each with 8.4 per cent). As indicated in Appendix Figure 20, percentages employed in manufacturing are closely related to the presence of urban areas. It is noteworthy that *municipios* in which the major points of entry are located all exhibit high proportions employed in manufacturing.

Housing: Two indexes related to housing conditions have been selected for examination. These are the percentage of living quarters occupied by owners and the percentage of living quarters without water service.

The percentage of living quarters occupied by owners for the six states is 55.2 per cent and the range is from 50.9 in Coahuila to 61.6 per cent in Sonora. Generally, the more remote rural areas exhibit the highest proportions of ownership. Low proportions are commonly located in the *municipios* bordering the United States, as shown in Appendix Figure 21.

The percentage of living quarters without water service averages 5.4 per cent for the six Mexican states. The range is from 1.7 per cent in Baja California, T.N., to 6.1 per cent in Nuevo León. As shown in Appendix Figure 22, the highest proportions are found some distance from the border.

Population change and migration: The major index of migration afforded by the Mexican census is a classification of the population according to birthplace. The percentages of the population born in the entity, or in another entity at the time of the census, are shown in Table 8 and in Appendix Figure 23.

Table 7. Labor force by type of occupation, for the Mexican border states, 1950 (in per cent)*

Mexican border states	Total 12 & over in labor force	Agriculture, forestry, hunting & fishing	Extractive industry	Manufacturing industry	Construction industry	Electricity, gas, etc.	Commerce	Transportation	Services	NA
Total, 6 Mexican states	48.5	50.0	3.0	11.7	3.7	0.3	9.8	3.6	11.5	6.4
Baja Calif., T.N.	51.4	45.6	0.5	11.1	4.1	0.5	11.8	3.0	17.3	6.1
Chihuahua	47.8	55.0	4.6	9.2	3.7	0.3	8.0	3.1	10.9	5.2
Coahuila	47.9	49.2	4.0	13.3	3.4	0.4	10.0	3.7	10.4	5.6
Nuevo León	48.5	41.0	0.8	18.4	4.1	0.3	11.3	3.9	11.0	9.2
Sonora	48.7	54.4	2.8	8.4	4.5	0.3	8.5	4.1	12.0	5.0
Tamaulipas	49.1	52.6	3.6	8.4	3.0	0.4	10.6	3.8	11.7	5.9

**Septimo censo general de población,* Table 10 in individual territory volumes (Mexico, D. F.).

Table 8. Place of birth for the Mexican border states, 1950 (in per cent)*

Mexican border states	Total	Born in entity	Born in other entity	Born in foreign country
Total, 6 Mexican states	100.0	76.8	21.3	1.9
Baja Calif. T.N.	100.0	34.5	59.9	5.6
Chihuahua	100.0	85.5	12.1	2.4
Coahuila	100.0	79.0	19.8	1.2
Nuevo León	100.0	80.5	18.4	1.1
Sonora	100.0	86.7	12.3	1.0
Tamaulipas	100.0	66.8	30.9	2.3

**Septimo censo general de población,* Table 5 in individual territory volumes (Mexico, D. F.).

Slightly more than three-fourths of the residents of the six border states were born in the political entity in which they now reside. The range among the states is very great, from 35 per cent in Baja California, T.N., to 87 per cent in Sonora. Although these data cannot suggest distance of migration nor the time at which migration occurred, they do indicate "migratoriness" of the population. Figure 23 shows striking variations within Mexican states. Among the most mobile populations are those adjacent to or near the United States-Mexican border, particularly those at the major points of entry.

Table 9. Total population 1930, 1940, and 1950 and percentage change 1930–1940 and 1940–1950*

Mexican border states	Total population			% change	
	1950	1940	1930	1940–50	1930–40
Total, 6 Mexican states	3,762,963	2,617,723	2,054,345	43.7	27.4
Baja Calif., T.N.	226,965	78,907	48,327	187.6	63.3
Chihuahua	846,414	623,944	491,792	35.7	26.9
Coahuila	720,619	550,717	436,425	30.9	26.2
Nuevo León	740,191	541,147	417,491	36.8	29.6
Sonora	510,607	364,176	316,271	40.2	15.1
Tamaulipas	718,167	458,832	344,039	56.5	33.4

**Septimo censo general de población,* Tables 23, 24, and 25 in individual territory volumes (Mexico, D. F.).

Table 9 shows the population of the Mexican border states in 1930, 1940, and 1950 as well as percentage change between 1930 and 1940 and between 1940 and 1950. All border states are exhibiting rapid population gains and the rate of increase for all states has been greater in the past than in the previous decade. In the past two decades, the largest percentage increase occurred in Baja California, T.N. The percent change was 63 per cent and 188 per cent respectively. The smallest rate of gain in the period between 1940 and 1950 was for Coahuila (30.9 per cent). As shown in Table 10, increasing urbanity characterizes all the border states. The proportion of urban population rose in all states between 1940 and 1950. In the previous decade, however, half of the states were less urban in 1940 than in 1930. Thus the rapid urbanization of this area of Mexico came in the past decade.

Table 10. Urbanity and rurality, 1930–1950, for the Mexican border states*

Mexican border states	% urban			% rural		
	1950	1940	1930	1950	1940	1930
Total, 6 Mexican states	52.1	42.5	41.4	47.9	57.5	58.6
Baja Calif., T.N.	64.5	50.5	54.4	35.5	49.5	45.6
Chihuahua	44.1	36.7	33.0	55.9	63.3	67.0
Coahuila	57.4	50.6	52.1	42.6	49.4	47.9
Nuevo León	55.9	43.9	41.2	44.1	56.1	58.8
Sonora	45.3	32.7	36.7	54.7	67.3	63.3
Tamaulipas	53.0	45.5	42.8	47.0	54.5	57.2

**Septimo censo general de población,* Tables 23, 24, and 25 in individual territory volumes (Mexico, D. F.).

Practices regarding food and footwear: Habitual practices relating to food and footwear, presented in Table 11, are summarized for the six Mexican border states. The proportions habitually going barefoot and the proportions habitually not eating wheat bread are shown in Appendix Figures 24 and 25, respectively.

As shown in Table 11, approximately 9 per cent of the population over one year of age in the six states was reported as habitually using huarachos or sandals and 3.4 per cent were reported as going barefoot. The highest percentages were reported for the states of Chihuahua and Nuevo León; the lowest percentages were reported for Baja California, T.N. The highest proportions going barefoot are restricted to inland areas, notably Chihuahua, Nuevo León, and Tamaulipas. Very low proportions are found in *municipios* near the international border.

The following are illustrations for "Demographic Characteristics of the United States-Mexican Border" by J. Allan Beegle, Harold F. Goldsmith, and Charles P. Loomis.

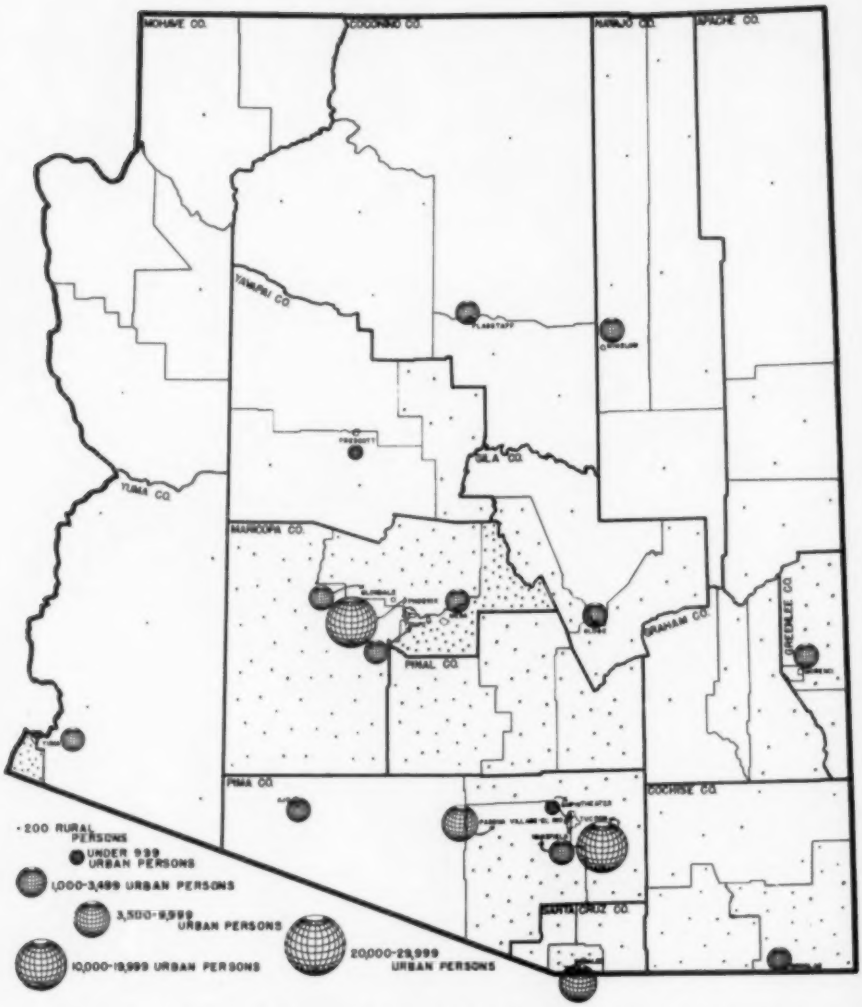

Figure 1. Distribution of Spanish surname population, by minor civil divisions, Arizona, 1950

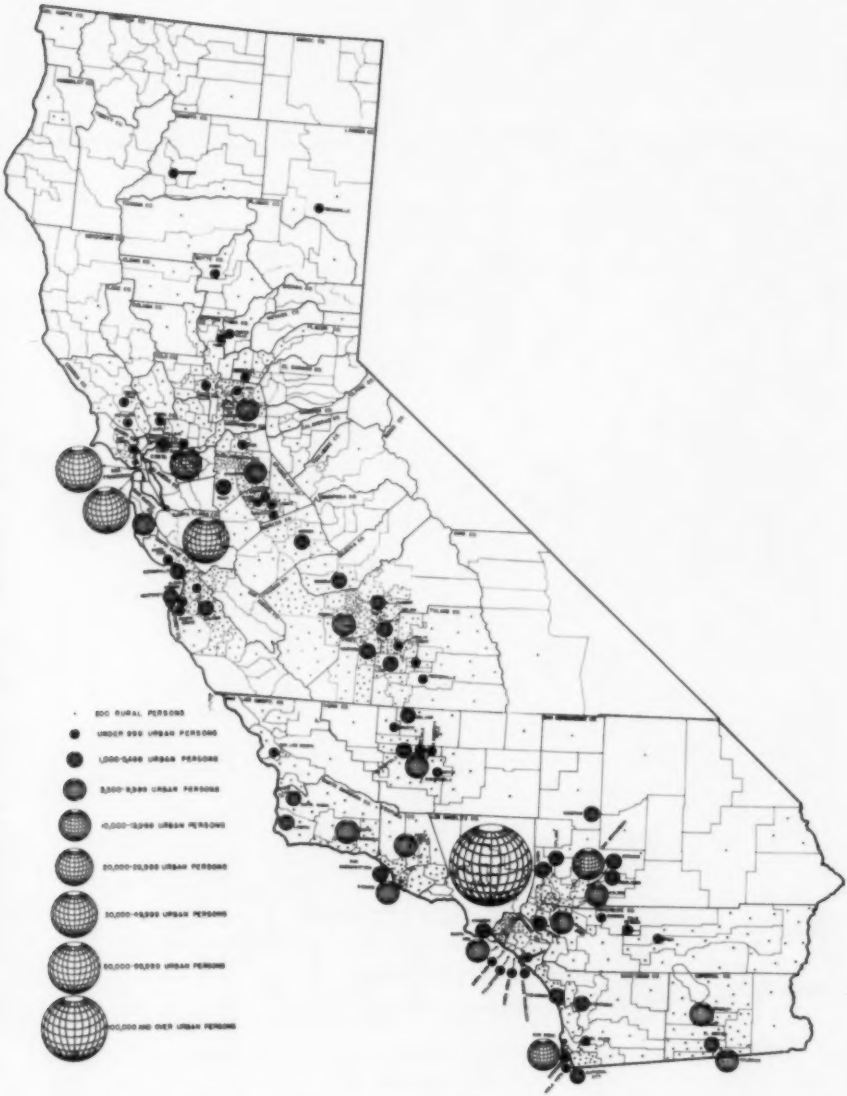

Figure 2. Distribution of Spanish surname population, by minor civil divisions, California, 1950 (because of technical problems, a single sphere is used to denote total Spanish surname population in Alameda, Contra Costa, Los Angeles, San Mateo, and Santa Clara Counties)

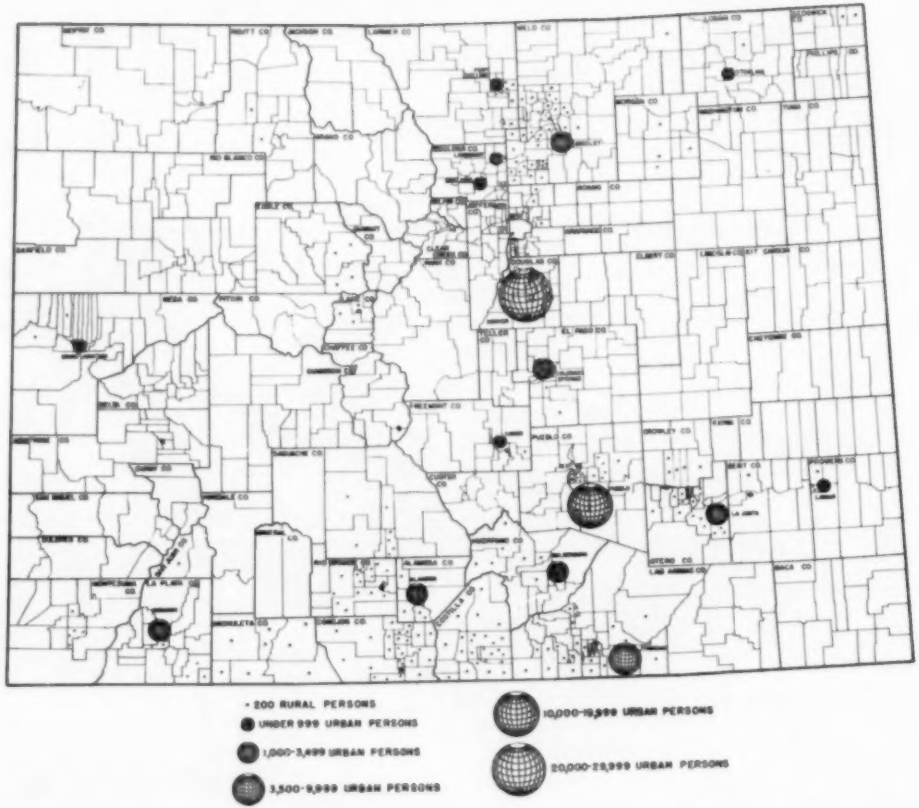

Figure 3. Distribution of Spanish surname population, by minor civil divisions, Colorado, 1950

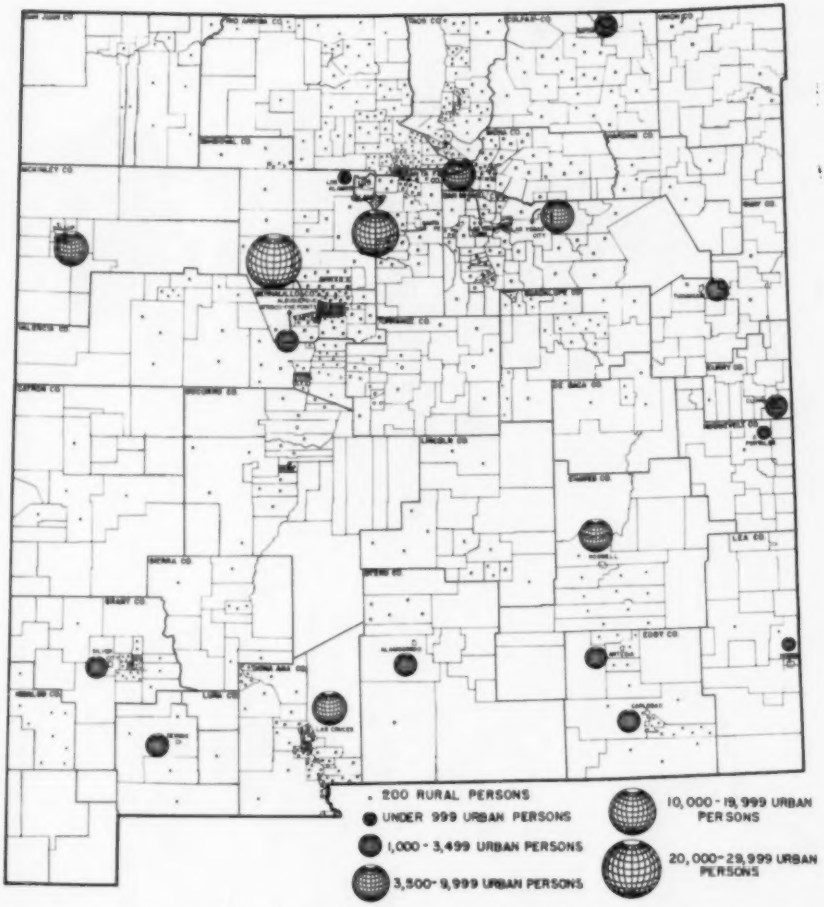
. 200 RURAL PERSONS
UNDER 999 URBAN PERSONS
1,000 - 3,499 URBAN PERSONS
3,500 - 9,999 URBAN PERSONS
10,000 - 19,999 URBAN PERSONS
20,000 - 29,999 URBAN PERSONS

Figure 4. Distribution of Spanish surname population, by minor civil divisions, New Mexico, 1950

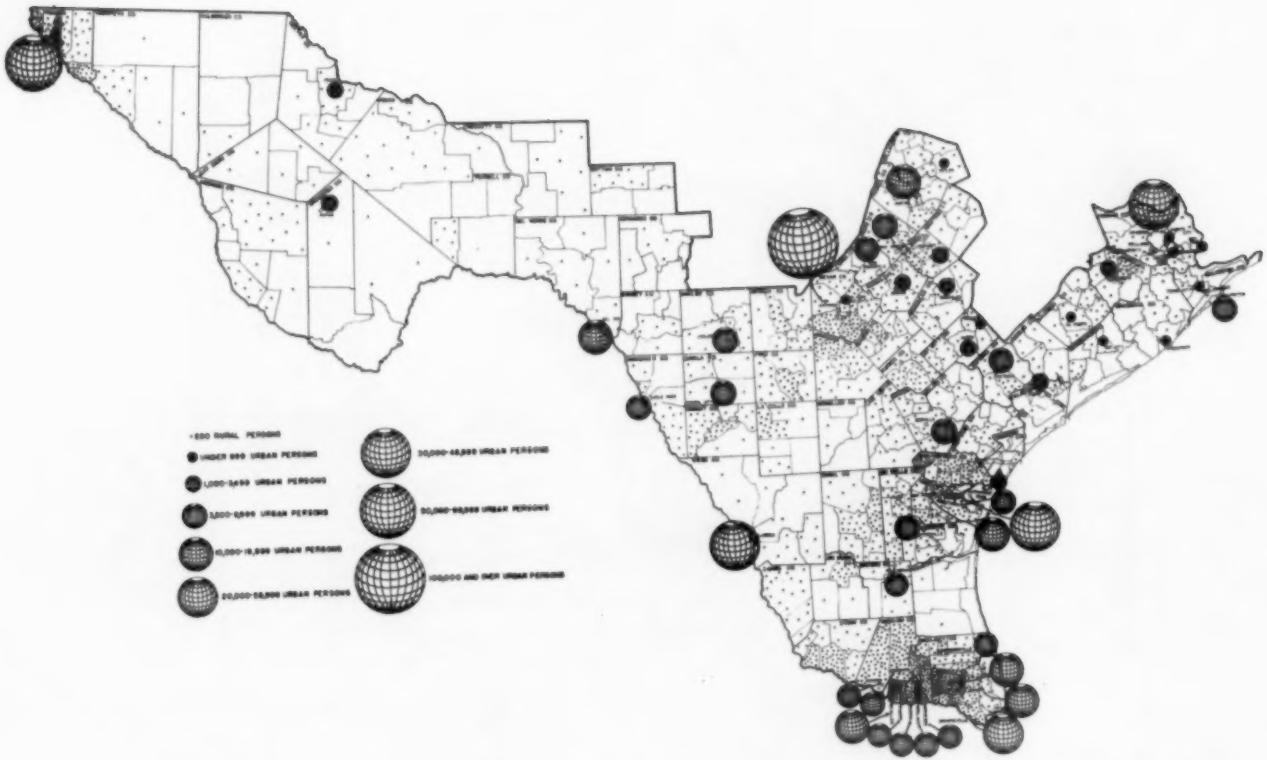

Figure 5. Distribution of Spanish surname population, by minor civil divisions, Texas, 1950 (see also facing page)

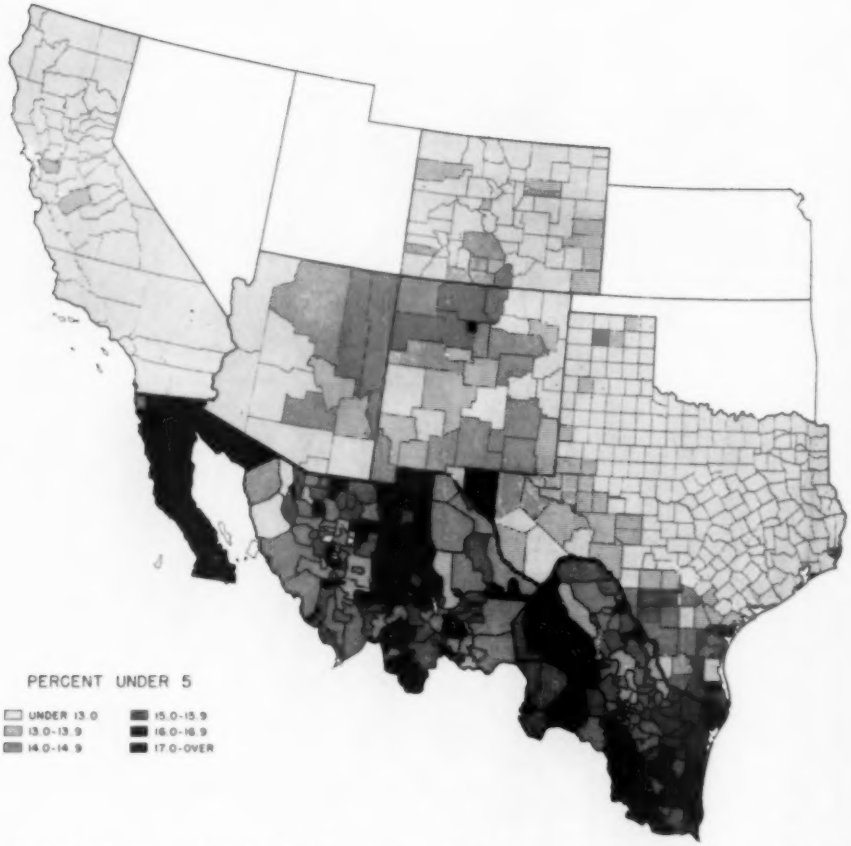

Figure 6. Percentage under 5, by county and *municipio*, for five southwestern states and six Mexican states, 1950

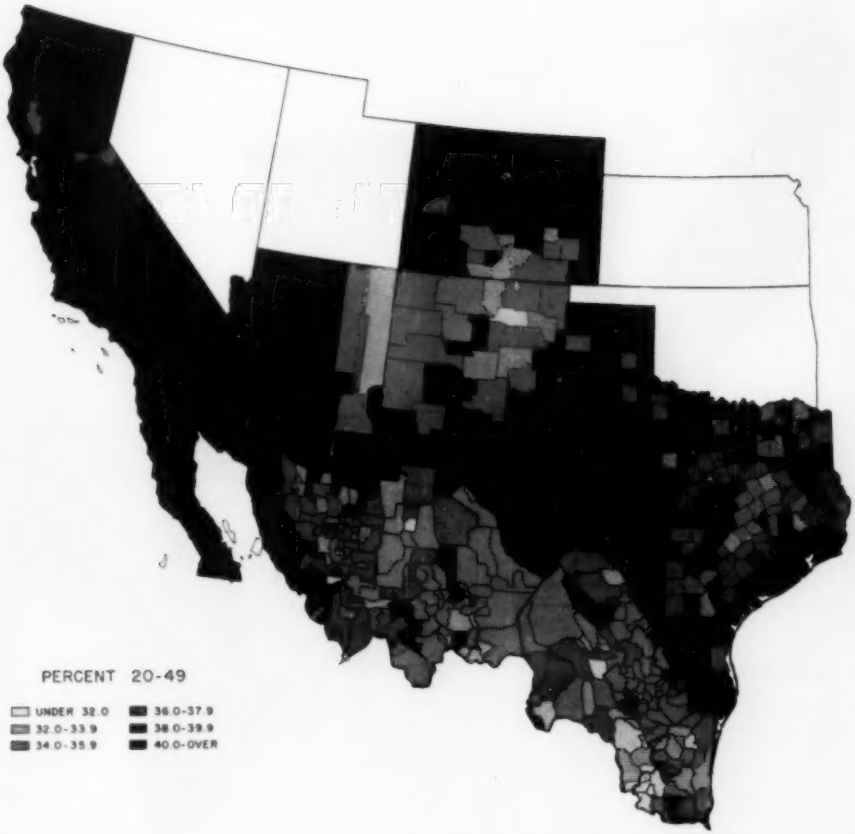

Figure 7. Percentage 20 to 49, by county and *municipio*, for five southwestern states and six Mexican states, 1950

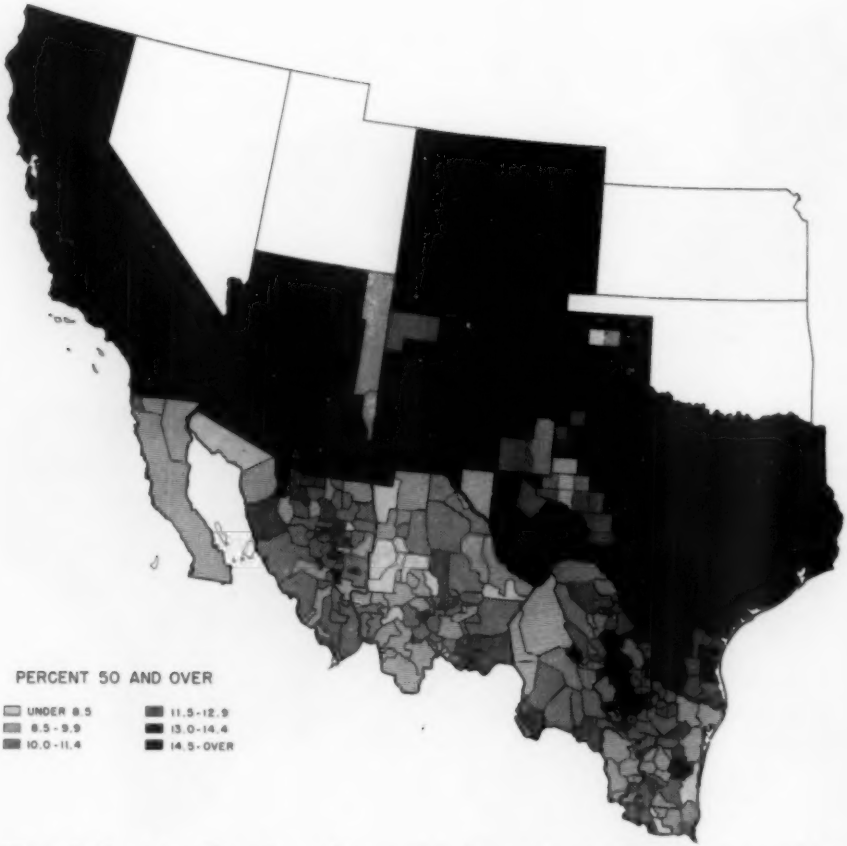

Figure 8. Percentage 50 and over, by county and *municipio*, for five southwestern states and six Mexican states, 1950

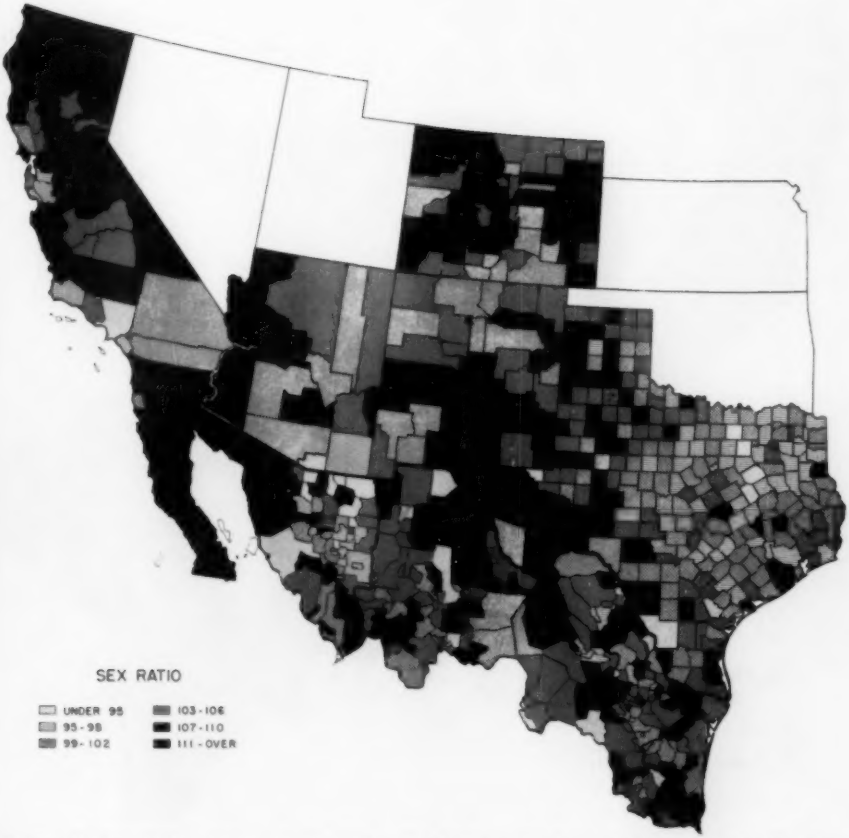

Figure 9. Sex ratios (number of males divided by number of females multiplied by 100), by county and *municipio*, for five southwestern states and six Mexican states, 1950

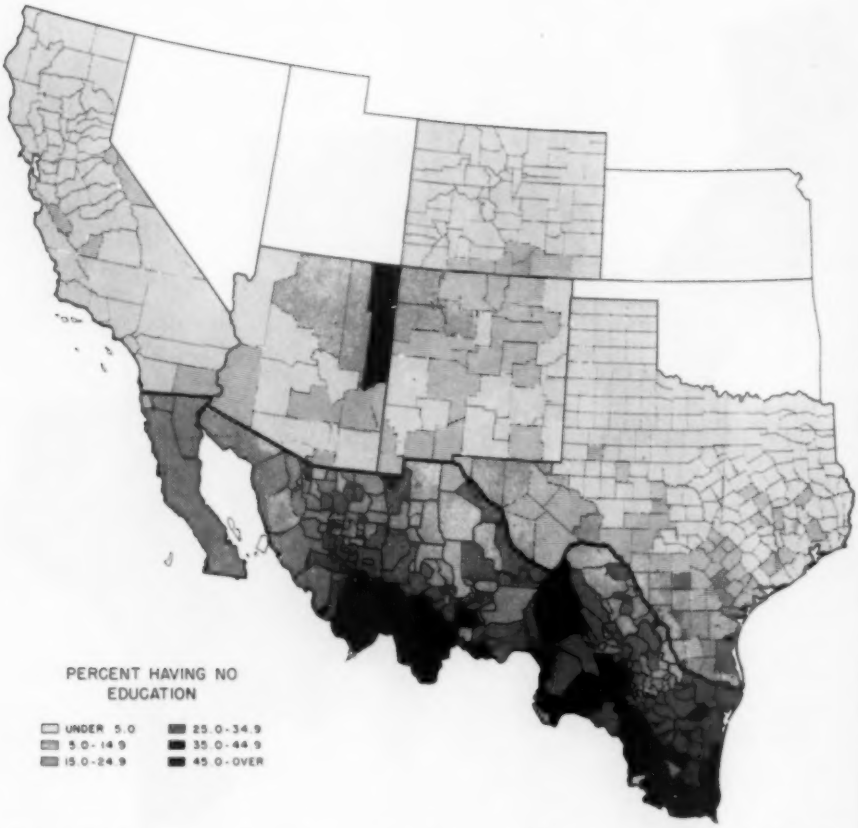

Figure 10. Percentage of population 25 and over completing no years of schooling, by county and *municipio*, for five southwestern states and six Mexican states, 1950

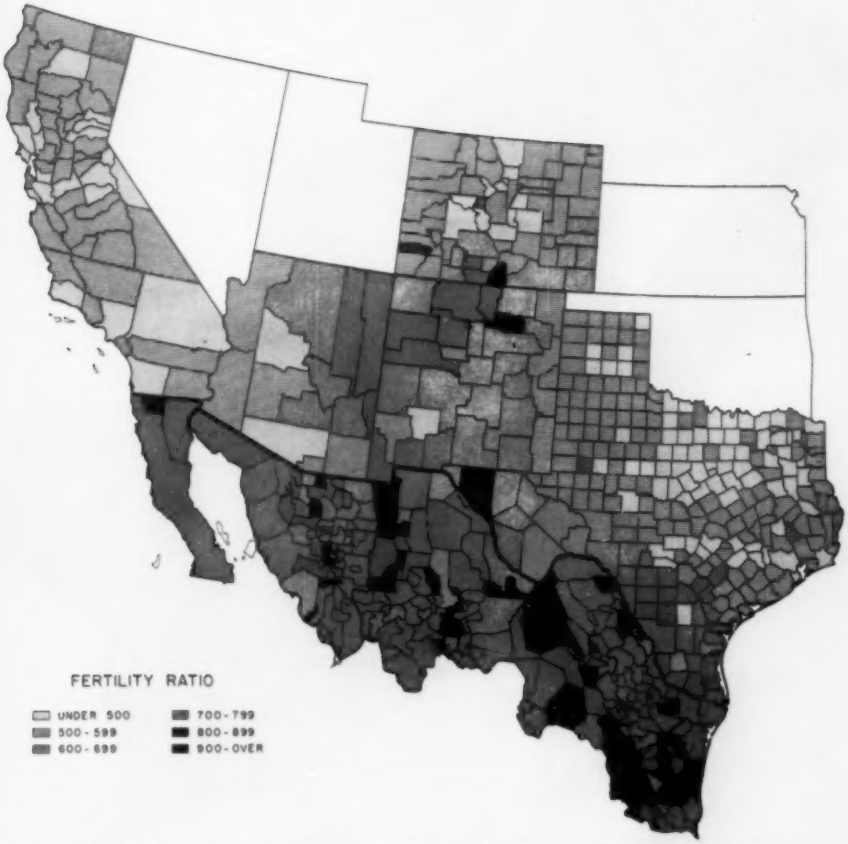

Figure 11. Fertility ratios (number of children under five divided by number of females aged 15 to 44 multiplied by 1,000), by county and *municipio*, for five southwestern states and six Mexican states, 1950

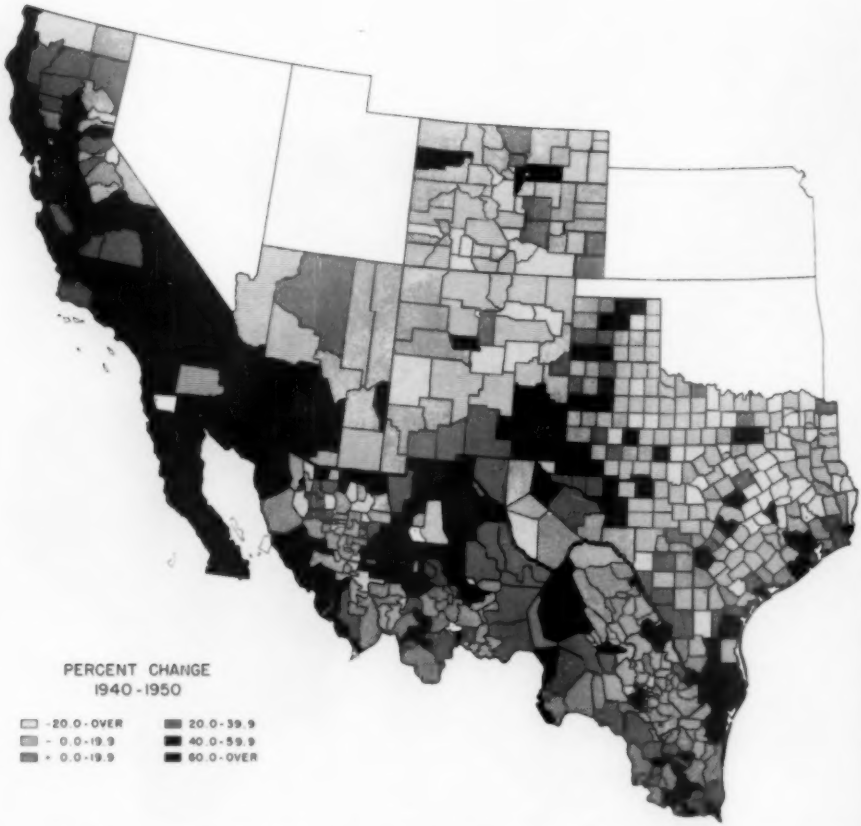

Figure 12. Per cent change in total population, 1940 to 1950, by county and *municipio*, for five southwestern states and six Mexican states

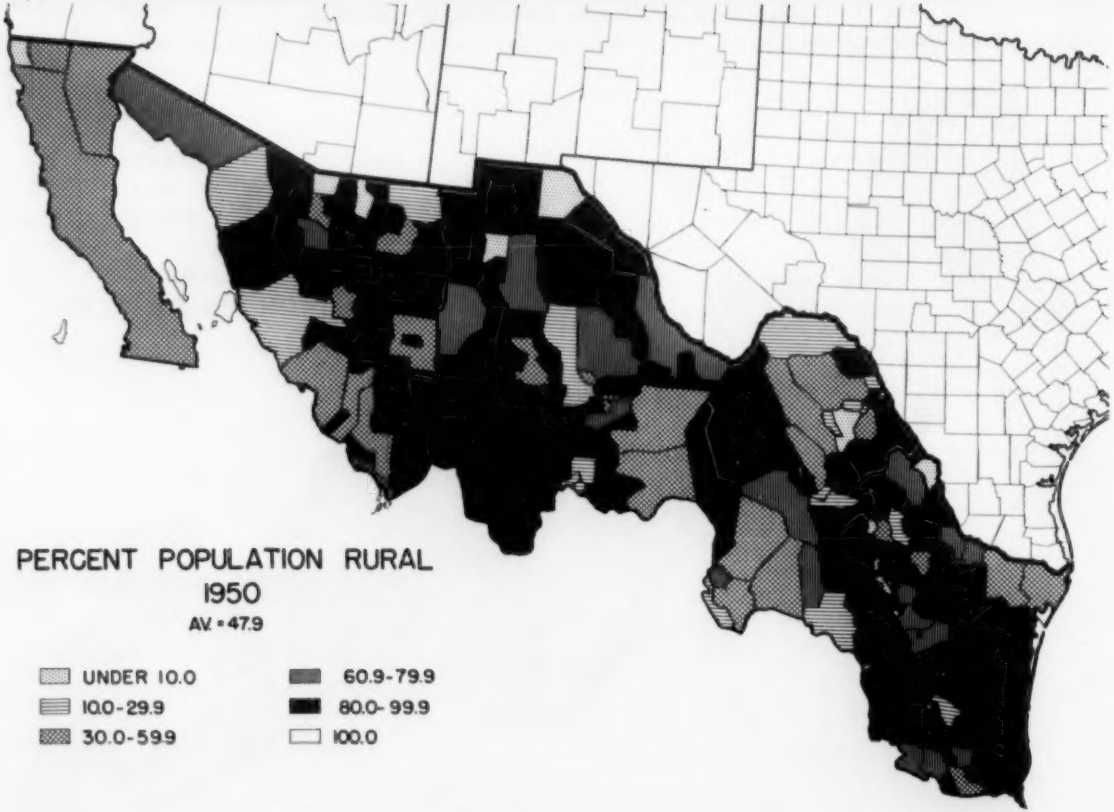

Figure 13. Per cent rural population in six Mexican states, by *municipio*, 1950

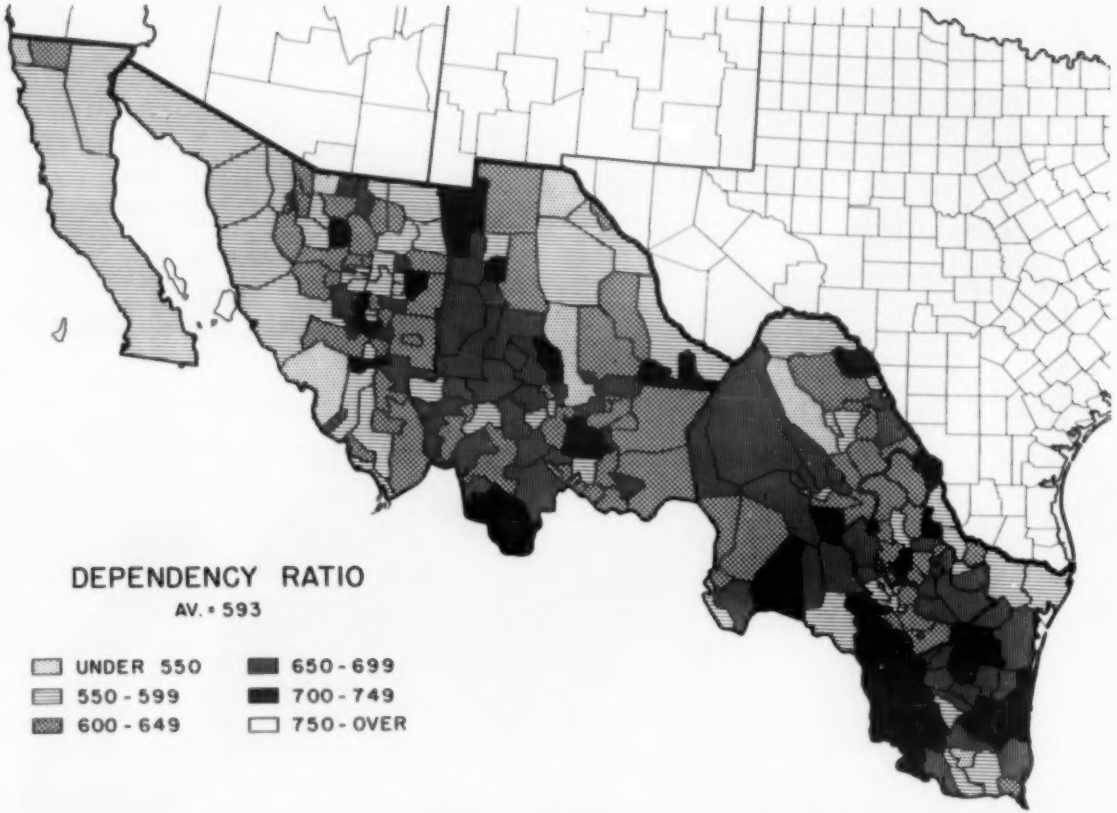

Figure 14. Dependency ratio (number of dependents under 12 and 65 and over per thousand nondependents of known age) in six Mexican states, by *municipio,* 1950

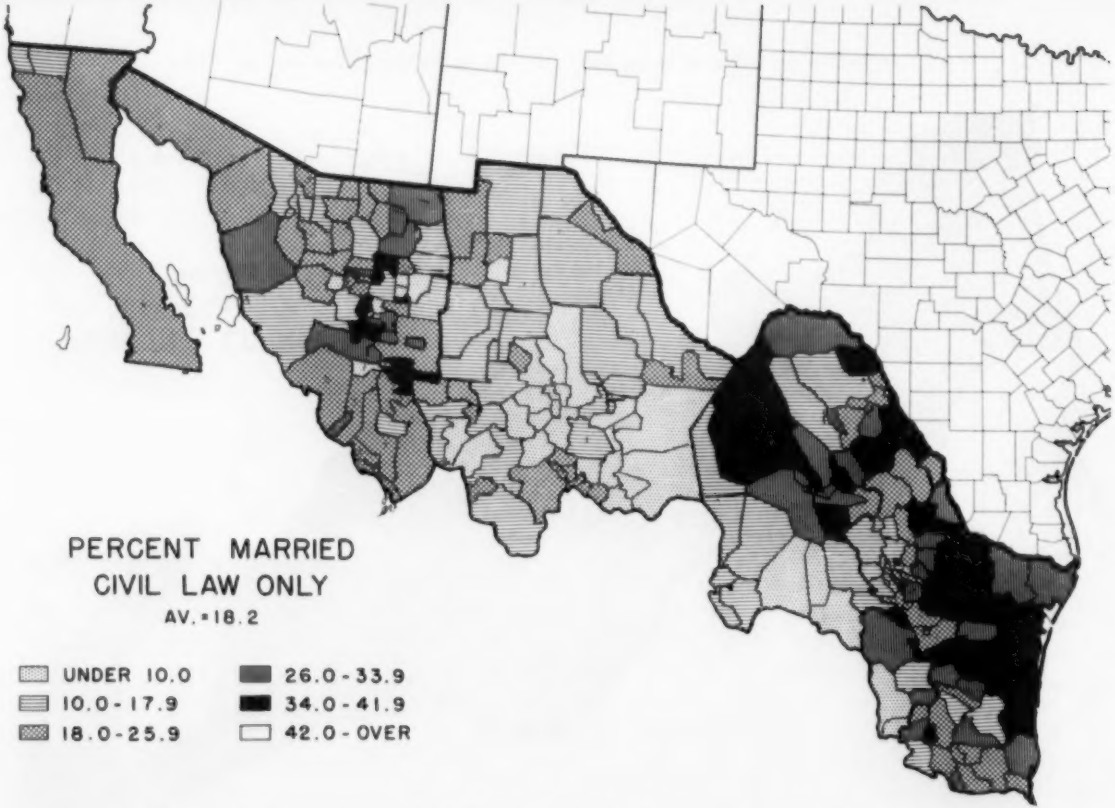

Figure 15. Per cent married, civil law only, in six Mexican states, by *municipio,* 1950

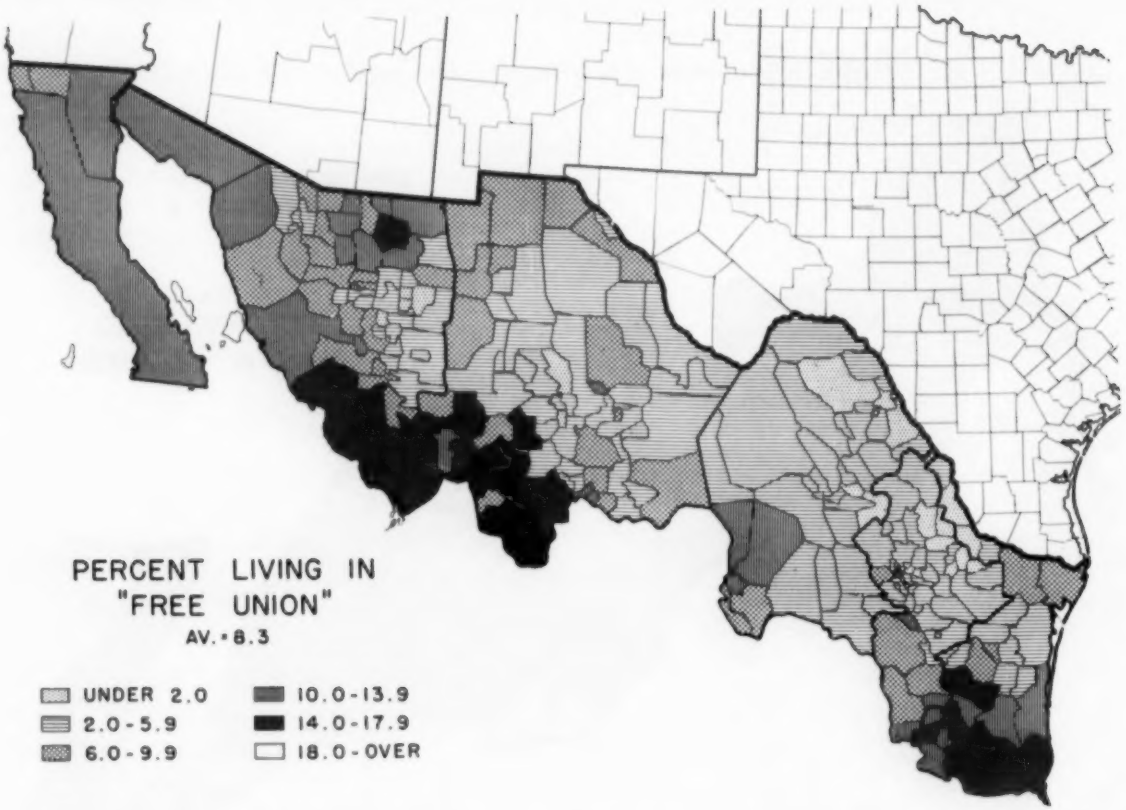

Figure 16. Per cent living in "free union" in six Mexican states, by *municipio*, 1950

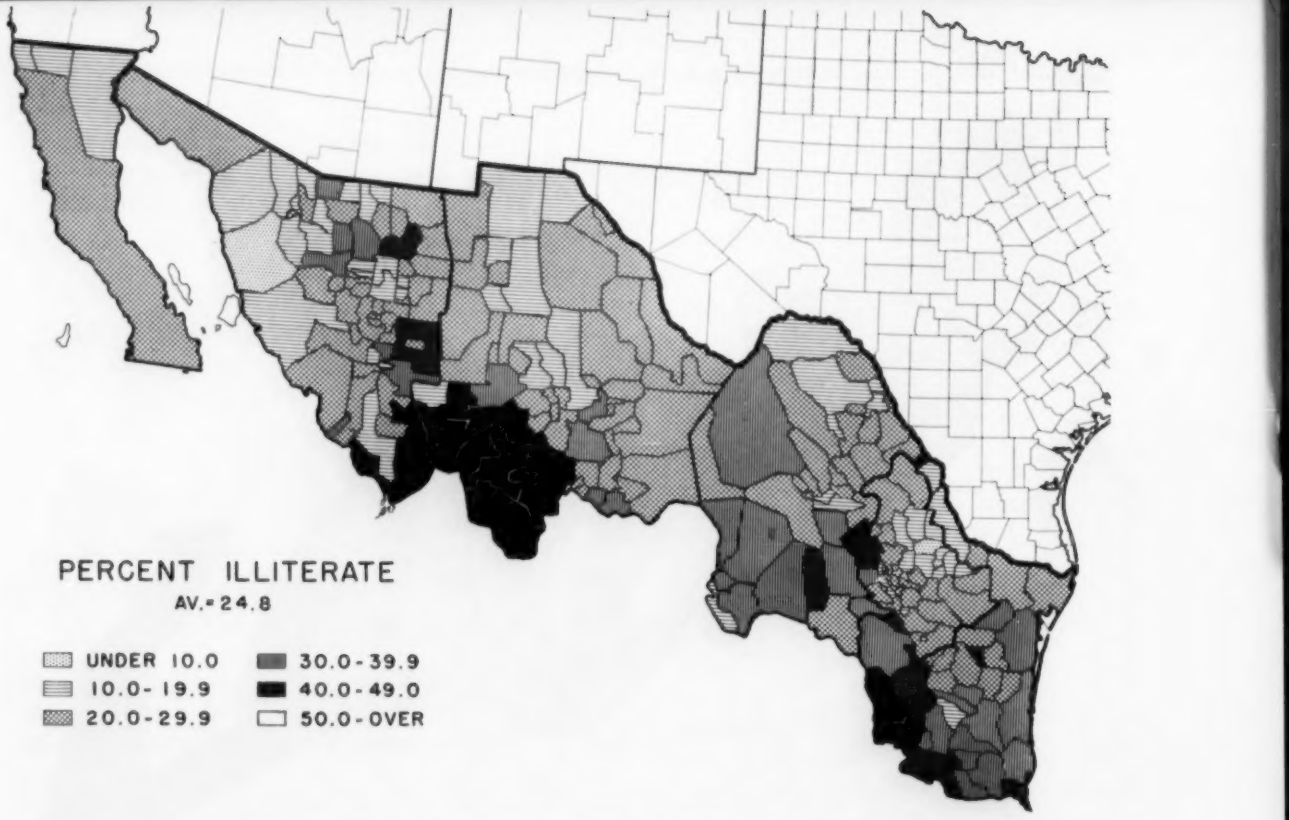

Figure 17. Per cent illiterate population (five years old and over) in six Mexican states, by *municipio*, 1950

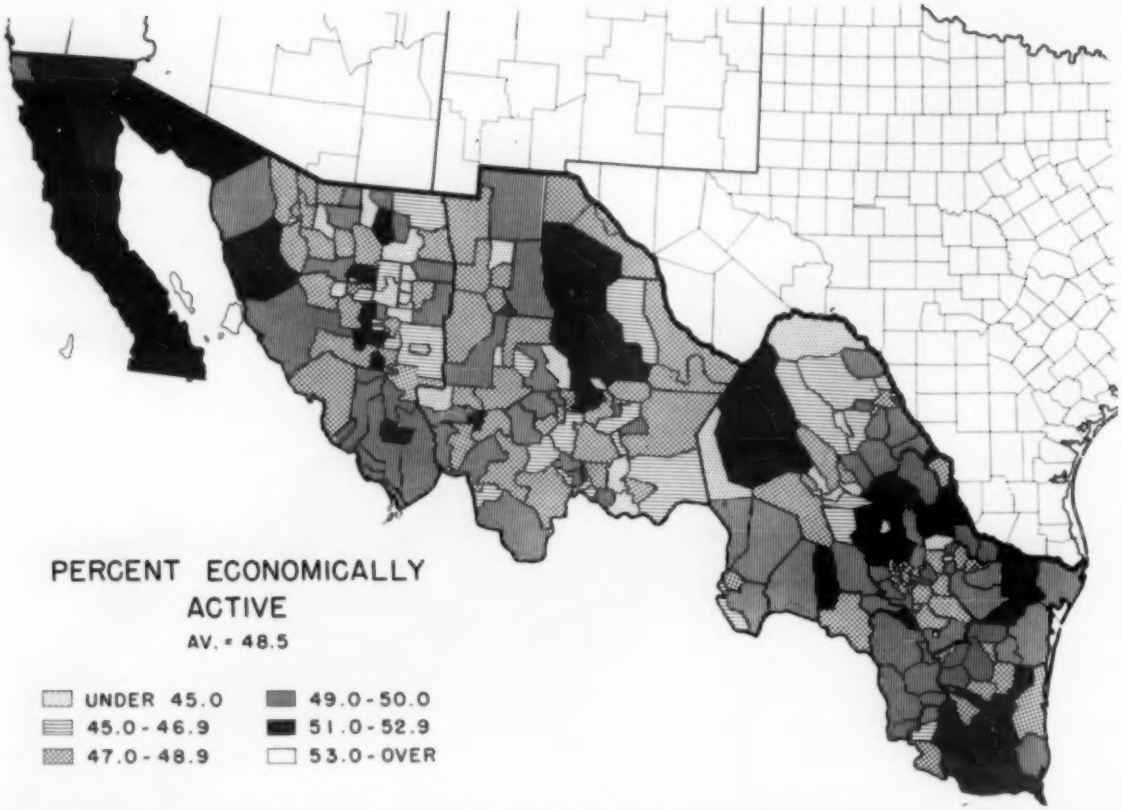

Figure 18. Percentage of persons 12 and over economically active in six Mexican states, by *municipio*, 1950

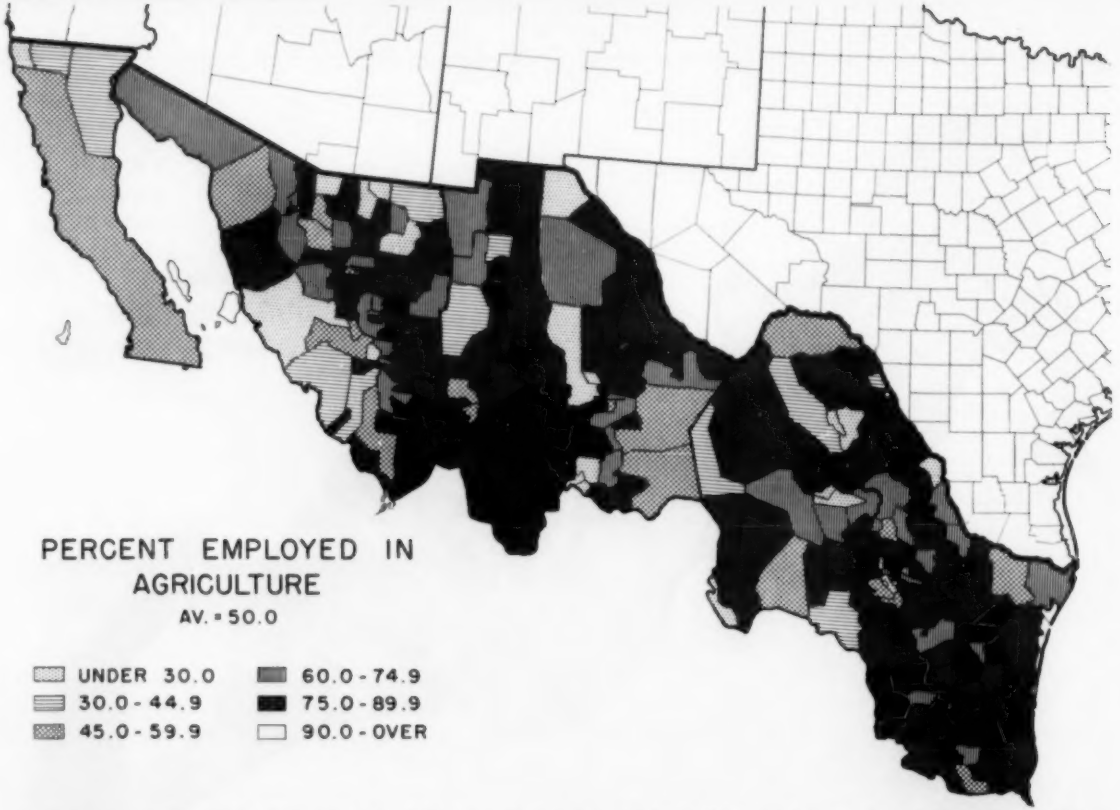

Figure 19. Percentage of persons 12 and over employed in agriculture, forestry, hunting and fishing in six Mexican states, by *municipio,* 1950

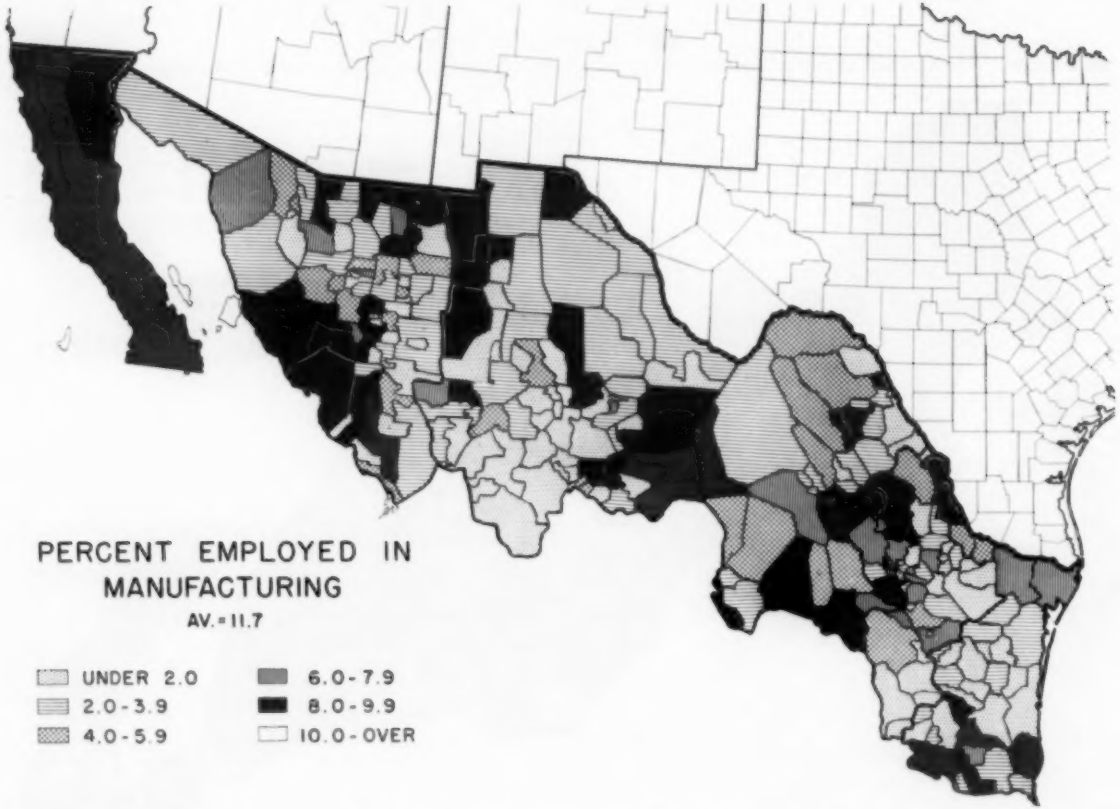

Figure 20. Percentage of persons 12 and over employed in manufacturing in six Mexican states, by *municipio*, 1950

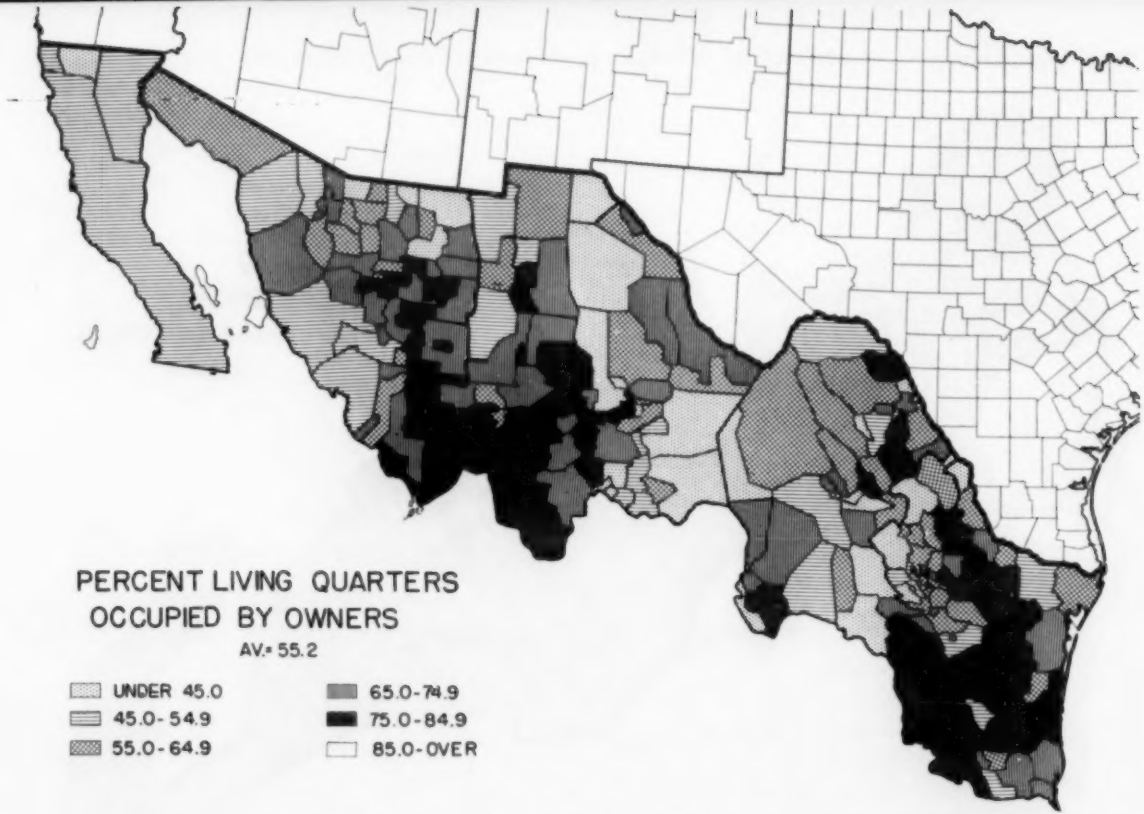

Figure 21. Percentage of living quarters occupied by owners in six Mexican states, by *municipio,* 1950

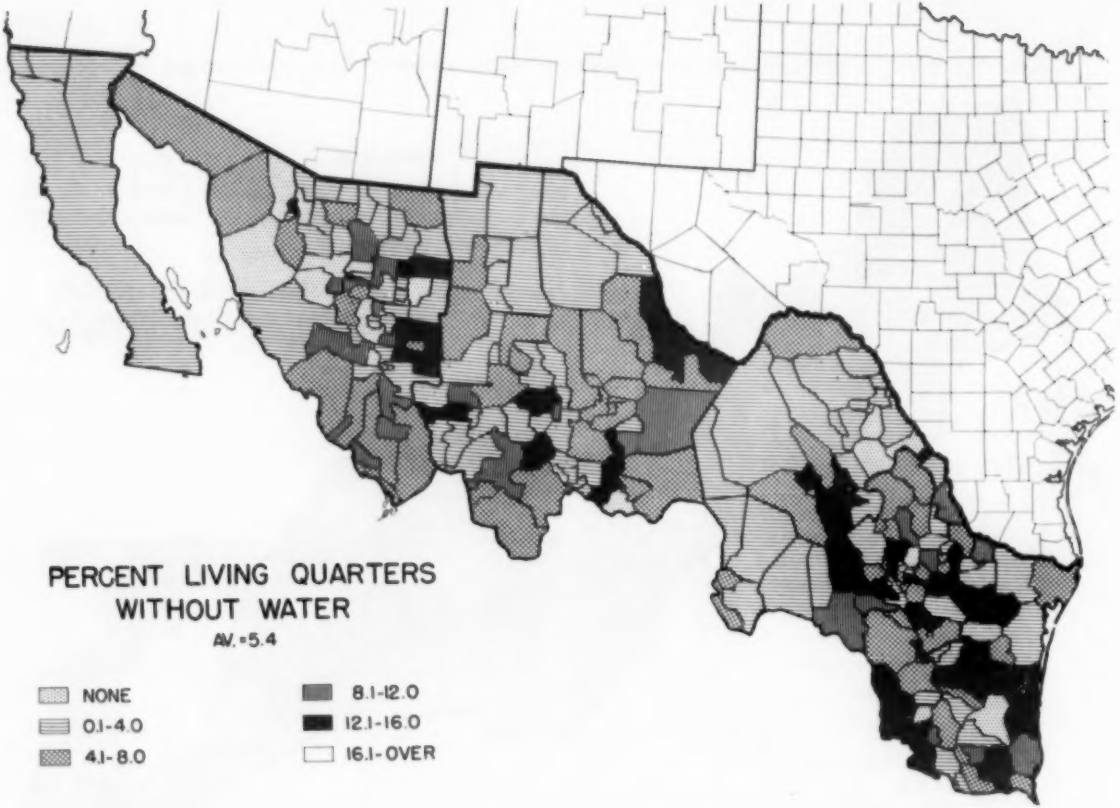

Figure 22. Percentage of living quarters without water in six Mexican states, by *municipio*, 1950

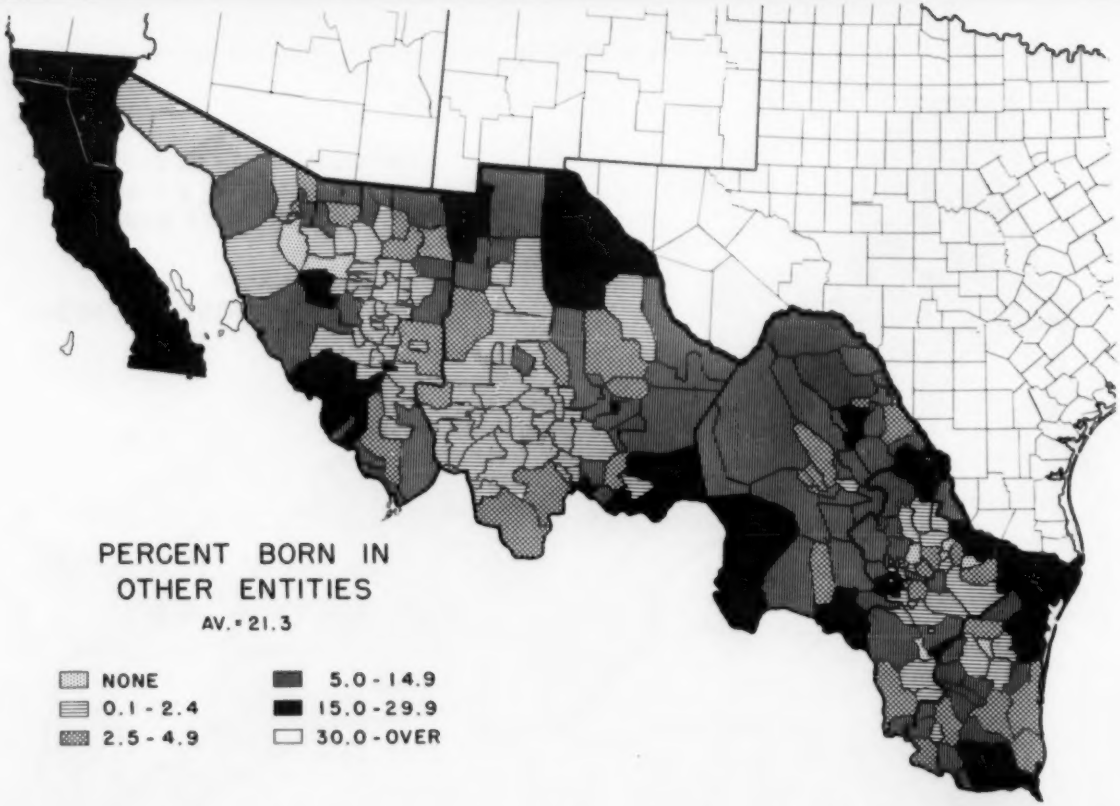

Figure 23. Percentage of population "born in other entities" of present residence in six Mexican states, by *municipio*, 1950

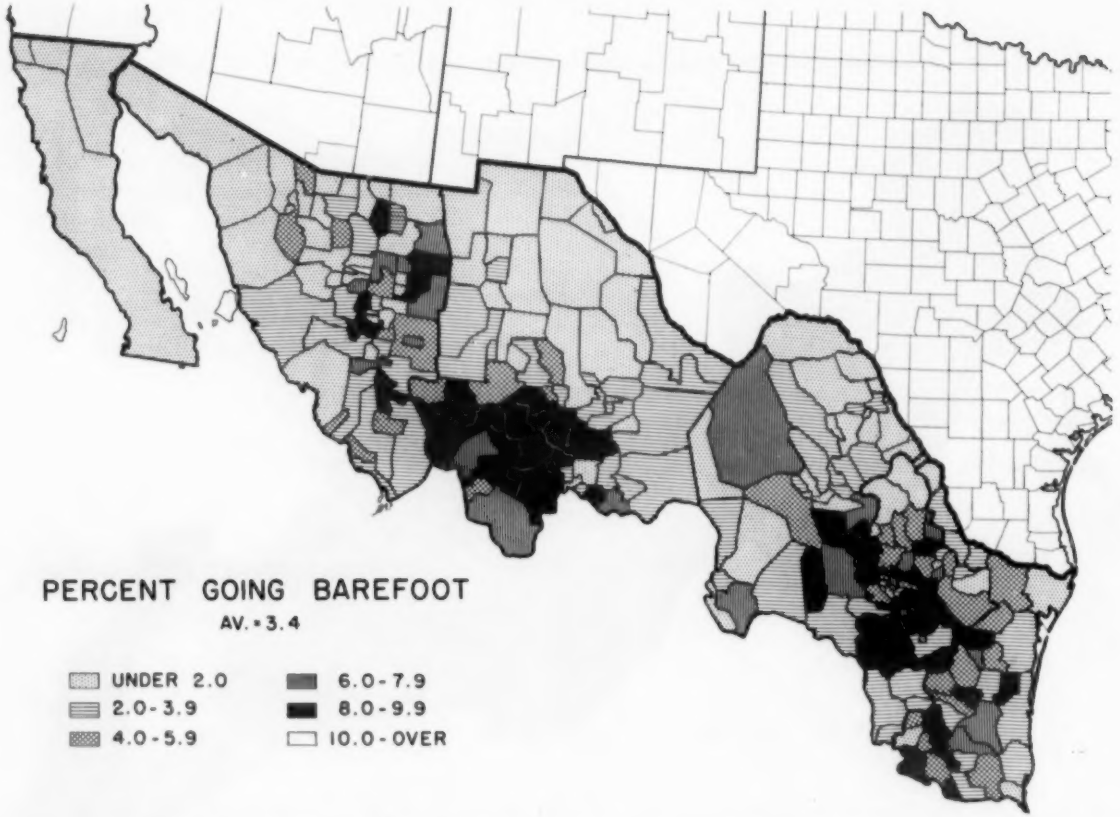

Figure 24. Percentage habitually going barefoot in six Mexican states, by *municipio*, 1950

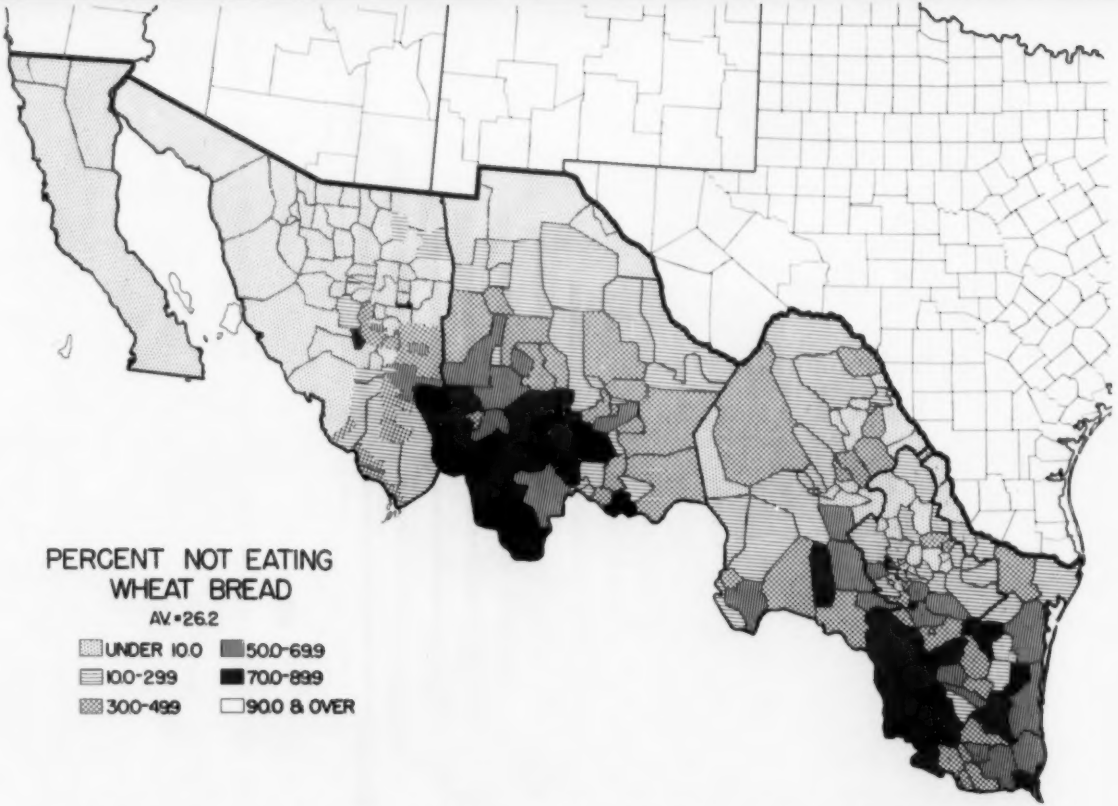

Figure 25. Percentage habitually not eating wheat bread in six Mexican states, by *municipio*, 1950

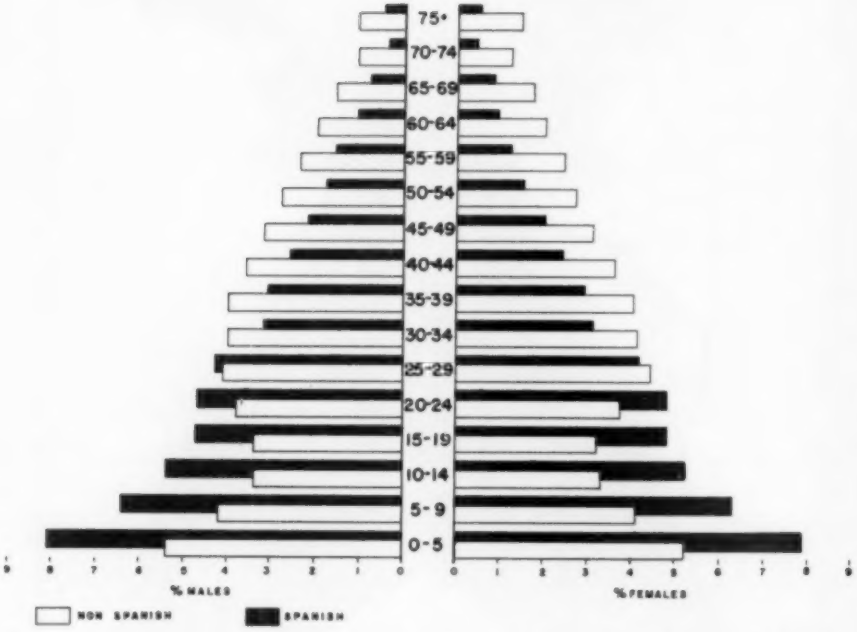

Figure 26. Age, sex pyramids for Spanish surname and non-Spanish surname populations, five southwestern states, 1950

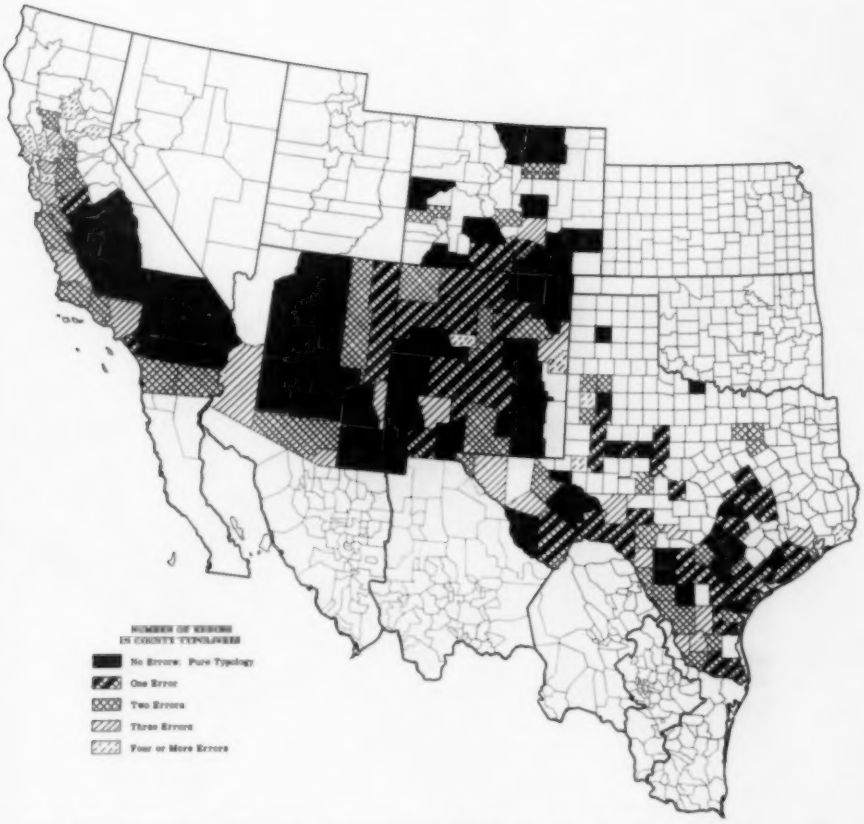

Figure 27. Spatial distribution of empirical typologies for Spanish surname county populations by number of errors, five southwestern states, 1950

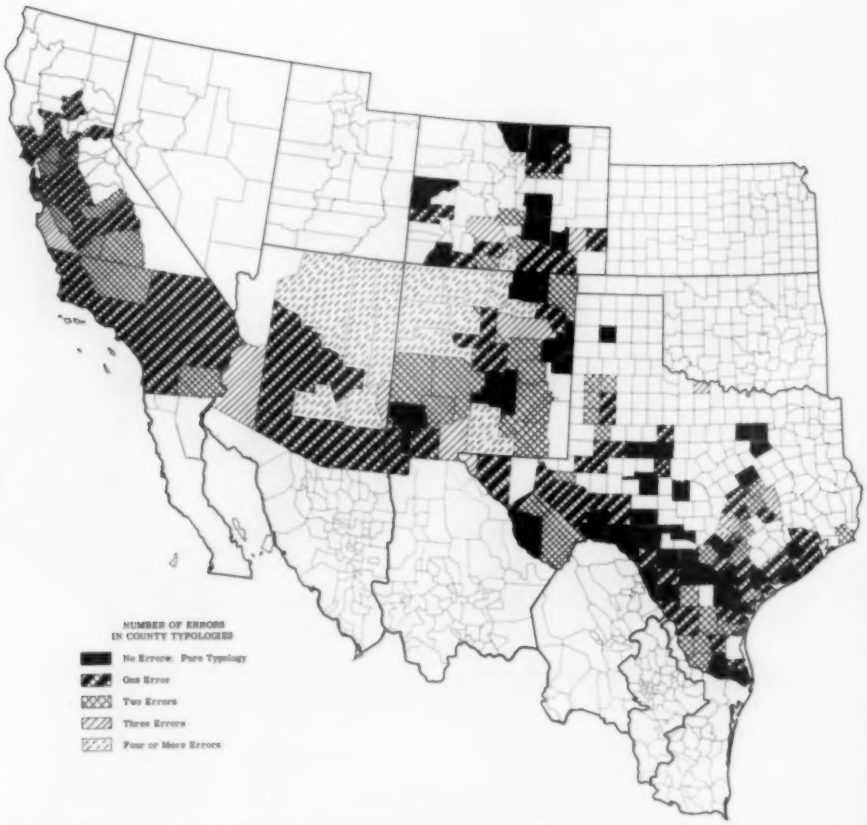

Figure 28. Spatial distribution of empirical typologies for non-Spanish surname county populations by number of errors, five southwestern states, 1950

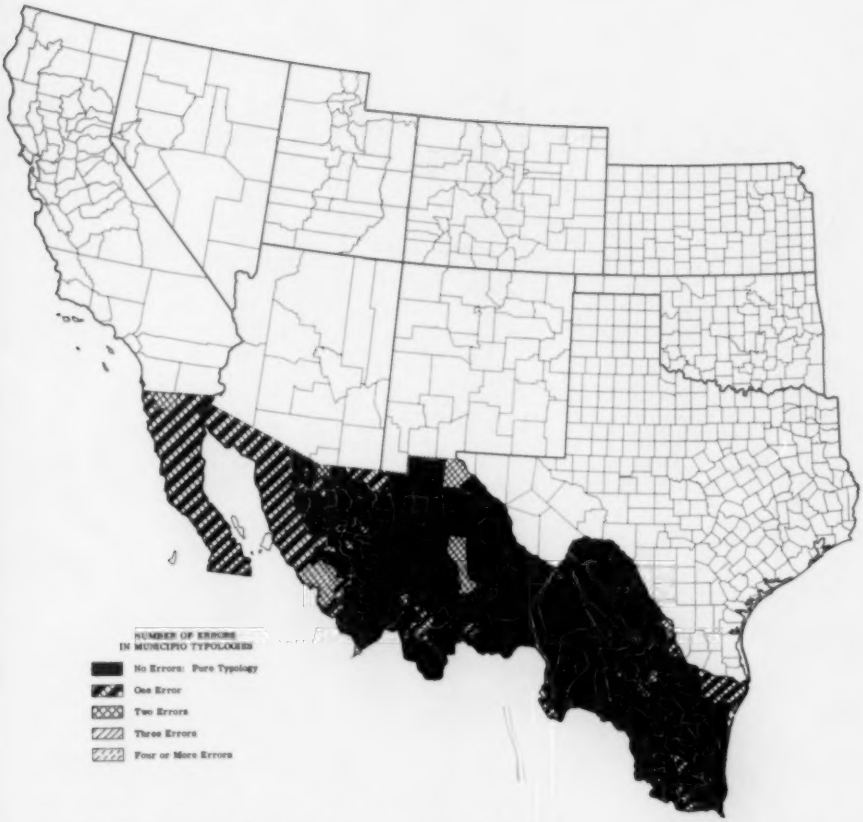

Figure 29. Spatial distribution of empirical typologies for *municipios* by number of errors, Mexican border states, 1950

Table 11. Food and footwear characteristics for the Mexican border states, 1950 (in per cent)*

Mexican border states	Total†	Eat wheat bread habitually	Do not eat wheat bread habitually	Total†	Use shoes habitually	Use huarachos or sandals habitually	Go barefooted habitually
Total, 6 Mexican states	100.0	73.8	26.2	100.0	87.7	8.9	3.4
Baja Calif., T.N.	100.0	93.1	6.9	100.0	99.1	0.4	0.5
Chihuahua	100.0	64.2	35.8	100.0	85.1	10.6	4.3
Coahuila	100.0	74.5	25.5	100.0	89.2	8.3	2.5
Nuevo León	100.0	73.4	26.6	100.0	85.0	10.5	4.5
Sonora	100.0	86.2	13.8	100.0	89.3	7.8	2.9
Tamaulipas	100.0	70.1	29.9	100.0	87.0	9.5	3.5

**Septimo censo general de población,* Table 14 in individual territory volumes (Mexico, D. F.).

†Percentages relate to total population over one year of age.

The practice of not eating wheat bread is greatest in Chihuahua and Tamaulipas and least in Baja California, T.N., as shown in Table 11 and Appendix Figure 25. The highest proportions apply to inland *municipios* and are closely correlated with the practice of going barefoot.

Both the food and footwear data in the Mexican census may be used to represent short-cut indications of social class. Those who eat *tortillas* made of corn or of ingredients other than wheat, for example, are culturally distinct from those who eat wheat bread after the European manner. Similarly, those who habitually go barefoot or who wear huarachos or sandals made at home or by a village craftsman are culturally and socially distinct from those who wear manufactured shoes of leather, canvas, or rubber.

CHARACTERISTICS OF SPANISH SURNAME AND NON-SPANISH SURNAME POPULATIONS IN THE SOUTHWEST

This section is devoted to a comparison of Spanish surname and non-Spanish surname populations of the five southwestern states. The two population aggregates are compared as to the following demographic measures: (1) residence distribution, (2) age and sex composition, (3) fertility, (4) marital status, and (5) educational level. Relevant data for Spanish surname and non-Spanish surname populations by counties in the five southwestern states are collected in Appendix Tables I, II, and III.

Residence distribution: The total population of the five southwestern states is highly urban, as shown in Table 12. For this population aggregate, 71 per cent reported urban residence, 18 per cent rural-nonfarm residence, and 11 per cent rural-farm residence. New Mexico and Arizona showed the smallest degree of urbanity while California exhibited the greatest amount of urbanity.

Table 12. Residence distributions, age distributions, sex ratios, and fertility ratios for Spanish surname and non-Spanish surname populations, five southwestern states, 1950*

Spanish & non-Spanish surname populations, southwestern states	% residence distribution			% age distribution				Sex ratio	Fertility ratio†
	Urban	Rural-nonfarm	Rural-farm	Under 5	5–19	20–49	50 and over		
Spanish surname population									
Total, southwestern states	66.4	21.5	12.1	15.9	32.9	39.8	11.4	104.3	720
Arizona	61.3	31.6	7.0	15.7	34.7	38.3	11.3	102.7	722
California	75.8	16.6	7.6	14.3	30.1	43.7	11.9	107.6	623
Colorado	49.7	34.5	15.8	17.1	36.5	35.1	11.2	103.9	818
New Mexico	41.0	35.9	23.2	16.2	35.5	35.7	12.6	102.3	770
Texas	68.1	18.8	13.1	16.9	33.8	38.6	10.7	102.6	773
Non-Spanish surname population									
Total, southwestern states	71.7	17.7	10.6	10.5	21.5	45.6	22.4	100.0	458
Arizona	54.3	34.8	10.9	11.7	25.6	43.6	19.1	102.2	512
California	81.0	13.8	5.2	10.1	19.3	46.4	24.2	99.5	443
Colorado	64.0	21.1	14.9	10.6	22.3	43.3	23.6	100.5	476
New Mexico	55.5	27.3	17.1	12.6	25.7	45.3	16.2	105.2	543
Texas	61.9	20.8	17.3	10.9	23.9	45.0	20.2	100.0	467

*U. S. Bureau of the Census, *U. S. Census of Population, 1950,* Vol. II, Part III, *Persons of Spanish Surname* and *General Characteristics for Selected States* (Washington: Government Printing Office, 1953).

†The fertility ratio is the number of children under 5 per 1,000 females aged 15 to 44.

In general, the Spanish surname population is less urban than the non-Spanish surname group. For the total of the five southwestern states, approximately 66 per cent of the Spanish surname population reported urban residence in contrast to approximately 72 per cent of the non-Spanish surname group. A larger percentage of the Spanish

surname than non-Spanish surname population reported rural-nonfarm and rural-farm residences. The proportions are 22 per cent as compared with 18 per cent in rural-nonfarm residence category and 12 per cent as compared with 11 per cent in the rural-farm residence category. As shown in Table 12, the states of Arizona and Texas depart from the residence pattern characterizing the aggregate of the five states. For county variations, see Appendix Table I.

Age and sex composition: The Spanish surname population in relation to the non-Spanish surname population is extremely youthful and has comparatively high sex ratios. A summary of the age distribution and the sex ratios for the two groups are shown in Table 12.

For both age groups under 20 shown in Table 12, the Spanish surname population exhibits larger proportions than its counterpart in all states of the southwest. For both age groups 20 and over, however, the reverse situation holds true in all five states. For the five southwestern states as a whole, 49 per cent of the Spanish surname population, as compared with only 32 per cent of the non-Spanish surname group, is over 20 years of age. Hence, the comparative figures for those 20 and over are 51 and 68 per cent, respectively.

In relation to the non-Spanish surname population, the proportions of Spanish surname peoples are extremely large for every five-year age group through 20–24. (See Figure 26.) Except for Spanish surname males between 25 and 29, the proportions of non-Spanish surname peoples in all age groups over 24 are much larger than those of Spanish surname peoples. Differences in the two surname groups, by residence categories, are similar to those outlined for the total population. The urban pyramids for each of the surname groups show smaller proportions of young and larger proportions of active, productive-age groups than the rural-farm or rural-nonfarm pyramids. The rural-farm pyramid suggests that the non-Spanish move off the farm at an earlier age than the Spanish surname population.

Due largely to the selectivity of males among migrants, sex ratios for Spanish surname people are higher than for non-Spanish surname people. (See Table 12.) The exception among the states of the Southwest is the instance of New Mexico. The largest difference between the name groups in sex ratio is found in California. For county variation in age and sex, see Appendix Table II.

Level of fertility: As one would expect on the basis of the discussion concerning age composition, the Spanish surname population exhibits extraordinarily high fertility as compared with the non-Spanish population. (See Table 12.) For all southwestern states, the Spanish surname population had a fertility ratio of 720 as compared with only 458 for the non-Spanish surname population. The greatest difference in fertility between the two name groups occurs in the states of Colorado and Texas.

The fertility ratios computed for the two name groups in counties of the Southwest having a thousand or more Spanish surname population are almost invariably at least one-third higher among Spanish surname peoples. Ratios of 800 and above for the Spanish population of many counties are common, perhaps due to a concentration of women in the most fertile period of the age span. For county differences in fertility, see Appendix Table II.

Marital status: In relation to the non-Spanish surname population, the Spanish surname group, both males and females, show larger proportions single, smaller proportions married, and smaller proportions widowed and divorced. (See Appendix Table III.) For the southwestern states as an aggregate, approximately 35 per cent of the Spanish surname males as compared with approximately 24 per cent of the non-Spanish surname males were reported as single. The comparable percentages for females are approximately 27 and 16, respectively. All of the individual states follow this same pattern.

Approximately 60 per cent of the Spanish surname males as compared with approximately 69 per cent of the non-Spanish surname males were reported as married. For females the comparable percentages were 62 and 68. Again, all of the individual states reported the same pattern of differences.

The proportions of widowed and divorced males were 5.3 and 6.9 per cent for Spanish surname and non-Spanish surname groups. Comparable proportions for females were 11.9 and 16.2 per cent. All states exhibited the same pattern except for males in New Mexico where the proportions of widowed and divorced among both surname groups were identical. (See variations in counties, Appendix Table III.)

Educational level: In accordance with expectation, differences in level of educational attainment are very great and favor the non-Spanish surname population. (See Appendix Table III.) Approximately 18 per cent of the Spanish surname group as compared with less than 2 per cent of the non-Spanish surname group completed no schooling. For the Spanish surname population, the range was from 9.5 per cent in Colorado to 27.0 per cent in Texas. The percentages of Spanish surname persons completing seven or eight grades, four years of high school, and four or more years of college were 15.2, 7.8, and 1.3 per cent. The comparable percentages for the non-Spanish surname group completing these levels were 21.5, 23.2, and 7.7 per cent. Proportions completing seven or eight grades was higher for Spanish surname peoples in New Mexico than for the non-Spanish surname group. (See Appendix Table III for county differences.)

TYPOLOGICAL ANALYSIS

This portion of the paper presents the results of a typological analysis of the demographic characteristics of the Spanish surname and non-

Spanish surname populations in counties with a thousand or more Spanish surname persons in the southwestern states of Arizona, California, Colorado, New Mexico, and Texas. The existence of unique demographic structures associated with aggregates of Spanish surname and non-Spanish surname persons was implicit in the previous discussion of levels of schooling, age and sex composition, and level of fertility, taken individually. The purpose here is to demonstrate that the typological analysis of the demographic characteristics of counties will help to systematize the regional data so that the frequency and the spatial patterning of common or typical configurations associated with Spanish surname and non-Spanish surname persons may be explicitly identified. In addition, the frequency and spatial patterning of empirical typologies that deviate from the common or typical configurations representative of the two populations are indicated. Such relationships are lost or confounded in the analysis of the demographic characteristics of large regions. By clarifying and systematizing the data, existing interrelationships may be readily comprehended and communicated. Further, the empirical typologies may be useful to indicate the continuities that exist in the social reality. Given the hypothesis that demographic variables reflect significant dimensions of social situations, then the patterning of such variables may be used as clues to understanding the structure and organization of communities and/or small areas within complex social systems or societies.

The construction of empirical typologies: The empirical typologies of the Spanish surname and of the non-Spanish surname populations within the counties in the Southwest were constructed from the following demographic characteristics of the two populations: (1) age distribution, (2) marital status, (3) level of educational attainment, (4) economic status, and (5) fertility level.[7]

To develop the typologies it was necessary to designate the range of each characteristic that would be considered as typical of the Spanish surname and of the non-Spanish surname populations. To accomplish this, the demographic indices being considered were compiled separately for the aggregate of Spanish surname and non-Spanish surname persons residing in counties with 1,000 or more Spanish surname persons. The frequency distributions of county indexes were tabulated.

[7]The age distributions were represented by three broad age categories, namely, the per cent of a population 20 and under, the per cent of a population 20 to 49, and the per cent of a population 50 and over; the indices of marital status used were the percentages of males and females 14 years of age and older married, and the percentages of males and females 14 years of age and older single; the index of educational attainment used was the per cent of a population 25 years of age and older that had no schooling. The index of economic status used was the per cent of the total civilian labor force of a population that was unemployed. Rates were computed for both males and females. The fertility ratio (the number of children under 5 per 1,000 women 15 to 44 years of age) was used as an index of fertility. Thus, eleven demographic characteristics were used to construct the typologies.

Then for a specific measure such as the fertility ratio, the frequency distributions of Spanish surname and non-Spanish surname county populations were compared. The ranges of the measure, into which most of the Spanish surname county populations but not the non-Spanish surname county populations were classified, were designated as characteristic of Spanish surname populations. The ranges into which most of the non-Spanish surname county populations but not the Spanish surname county populations were classified were designated as characteristic of non-Spanish surname populations.

For a number of characteristics, there occurred a category or range into which a nearly equal number of Spanish surname and non-Spanish surname county populations were classified, even though the frequency distributions for each population were skewed in opposite directions. In such cases if the number of Spanish surname and non-Spanish surname county populations falling within this range was small (less than 35 per cent of the county populations) then the shared range was not considered typical of either population. On the other hand, if the number of Spanish surname and non-Spanish surname county populations falling into this range was large (more than 49 per cent of county populations) then the shared range was considered characteristic of both populations.[8]

Each of the demographic characteristics was divided into ranges which were designated as being characteristic or typical of either the Spanish surname populations of the counties or the non-Spanish surname populations of the counties. The results are presented in Table 13.

Description of the pure typologies: The set of categories designated as typical of one population are here defined as a pure typology for that population. From Table 13 it can be seen that the pure Spanish surname typology, when compared with the United States averages for 1950, is characterized by a higher proportion of persons under 20, of single persons of both sexes, of unemployed, and of persons without any formal education. At the same time this typology is characterized by a lower proportion of persons 20 years of age and over and a smaller proportion married of both sexes. In addition the fertility ratios characteristic of the pure Spanish surname typology are well above those for the United States in 1950. In contrast, the non-Spanish surname typology is characterized by a low proportion of persons under 20 years of age and a high proportion of persons 20 years of age and over. Associated with the age structure, the pure non-Spanish surname

[8]Given the rules regarding shared ranges, the range 38.0 to 47.9 per cent of a population under 20 years of age, and the range 5.0 to 7.49 per cent of the males or females unemployed were not considered as typical of either Spanish surname or non-Spanish surname populations; the range 61.0 to 70.9 per cent of the women married was considered typical of both Spanish surname and non-Spanish surname populations.

Table 13. Selected demographic measures characteristic of Spanish surname and non-Spanish surname populations in five southwestern states,* U.S. averages for characteristics,† and Spanish surname and non-Spanish surname county populations within appropriate ranges (in per cent)

Characteristics	Spanish surname population		Non-Spanish surname population		United States 1950
	Range characterizing population	192 counties within range	Range characterizing population	192 counties within range	
Age distribution					
Ages under 20	48.4 and above	79.7	37.9 and below	74.0	33.9
Age 20 to 49	38.5 and below	67.2	38.6 and above	84.9	43.6
Age 50 and over	under 17.5	97.2	17.5 and above	72.9	22.5
Marital status					
Males 14 and over married	62.9 and below	82.8	63.0 and above	90.1	67.6
Males 14 and over single	30.0 and above	93.8	29.9 and below	89.1	26.2
Females 14 and over married	70.9 and below	94.3	61.0 and above	98.5	65.7
Females 14 and over single	20.0 and above	97.4	Less than 20	91.7	20.1
Fertility					
Fertility ratio	600 and above	94.3	599.9 and below	89.6	41.7
Educational attainment					
Persons 25 and older with no years of schooling	7.5 and above	92.7	7.49 and below	95.8	2.5
Economic status					
Males unemployed	7.5 and above	78.1	Under 4.9%	75.5	4.7
Females unemployed	7.5 and above	74.5	Under 4.9%	73.4	4.6

*U. S. Bureau of the Census, *U. S. Census of Population, 1950*, Vol. IV, Part III, *Persons of Spanish Surname* and *General Characteristics for Selected States* (Washington: Government Printing Office, 1953).

†*Ibid.*, Vol. II, *Characteristics of the Population, Part I, U. S. Summary.*

typology is characterized by a higher proportion of men and women 14 years of age and older married, and a correspondingly lower proportion single, a lower fertility ratio, lower unemployment levels, and higher levels of educational attainment than the pure Spanish surname typology.

Distribution of pure and nonpure typologies: What empirical typologies exist in the 192 counties for the two populations, and what

is the frequency and spatial patterning of such empirical typologies? The pure non-Spanish and Spanish surname typologies will be used as a base line for determining the distribution of pure and nonpure empirical typologies. If the value of a given demographic characteristic for a population is outside the range of the characteristic as specified in the relevant pure typology, the population will be considered to contain an error in that characteristic. However, if the per cent of males and/or females unemployed in a population differs from the range in the relevant pure typology, it will be considered only one error.

In this section the relative frequency of pure and nonpure empirical typologies of Spanish surname and non-Spanish surname county populations as well as the spatial distribution of errors will be discussed. The distributions of the most frequently occurring county empirical typologies, in terms of their deviation from relevant pure typologies, are presented in Tables 14 and 15. The spatial distributions of the empirical typologies are presented in Figures 27 and 28. (Reference will be made to Tables 14 and 15 and Figures 27 and 28 where appropriate.)

Spanish surname and non-Spanish surname county populations

Table 14. Distribution of empirical typologies of Spanish surname county populations from counties with 1,000 or more Spanish surname persons, five southwestern border states, 1950

Extent & nature of deviancy of county populations from pure typology	Southwestern border states					
	Total	Arizona	California	Colorado	New Mexico	Texas
No. of counties with 1,000 or more Spanish surname persons	192	13	34	24	29	92
Total per cent	100.0	100.0	100.0	100.0	100.0	100.0
Per cent with no error	31.7	53.8	20.6	54.2	41.4	23.9
Per cent with 1 error	29.7	7.7	5.9	20.8	34.5	42.4
Economic status	19.8	7.7	0.0	8.3	31.0	28.3
Other	9.9	0.0	5.9	12.5	3.4	14.1
Per cent with 2 errors	19.8	15.4	29.4	20.8	10.3	19.6
Age categories	8.3	7.7	29.4	8.3	0.0	3.3
Other	11.5	7.7	0.0	12.5	10.3	16.3
Per cent with 3 errors	9.9	23.1	14.7	4.2	6.9	8.7
Per cent with 4 errors	8.9	0.0	29.4	0.0	6.9	5.4

classifiable as pure typologies occurred more often than any other empirical typology. Of the counties with a thousand or more Spanish surname persons, 32 per cent had Spanish surname populations classifiable as pure typologies, and one out of four of the counties had non-Spanish surname populations classifiable as pure typologies. (See Tables 14 and 15.) While the pure Spanish surname typology and the pure non-Spanish surname typology had sharply different demographic structures, relatively few of the counties had populations that deviated in many characteristics from the relevant pure typologies. Thus, 79.2 per cent of the counties had Spanish surname populations with two errors or less in their demographic characteristics as measured against the pure Spanish surname typology. (See Table 14.) Similarly, 81.3 per cent of the counties had non-Spanish surname populations with two or less errors. (See Table 15.) The errors that did occur in both populations tended to be in economic status and/or in an age category.

Table 15. Distribution of empirical typologies of non-Spanish surname county populations from counties with 1,000 or more Spanish surname persons, five southwestern border states, 1950

Extent & nature of deviancy of county populations from pure typology	Southwestern border states					
	Total	Arizona	California	Colorado	New Mexico	Texas
No. of counties with 1,000 or more non-Spanish surname persons	192	13	34	24	29	92
Total per cent	100.0	100.0	100.0	100.0	100.0	100.0
Per cent with no error	25.5	0.0	5.9	33.4	17.2	37.0
Per cent with 1 error	39.6	46.1	61.8	33.3	31.6	34.8
Economic status	16.7	38.4	58.9	8.3	3.5	4.3
Age category	20.8	7.7	0.0	25.0	24.1	28.3
Other	2.1	0.0	2.9	0.0	3.5	2.2
Per cent with 2 errors	20.3	0.0	26.5	16.7	17.2	22.8
Age categories	5.7	0.0	0.0	0.0	6.9	9.8
Age category and economic status	8.9	0.0	26.5	8.3	0.0	6.5
Other	5.7	0.0	0.0	8.3	10.3	6.5
Per cent with 3 errors	3.7	15.4	2.9	8.3	6.9	4.3
Per cent with 4 errors	8.9	38.5	2.9	8.3	27.6	1.1

For both populations, most counties with a large number of errors had at least one error in an age category. For the Spanish surname populations, the most common error was in the age category 20 to 49; for the non-Spanish surname populations the errors in age categories were about equally divided between having a higher proportion of young and a lower proportion of older persons than the pure typology. For the Spanish surname populations, an error in economic status generally represented a lower unemployment rate for females than for males.[9] For the non-Spanish surname populations, however, an error in the economic status of females tended to be associated with an error for males.[10]

Distribution of pure typologies: Colorado and Arizona had the highest proportion of Spanish surname county populations classifiable as pure typologies. The percentages were 54.2 and 53.8 respectively. (See Table 14.) The Spanish surname populations of Colorado and Arizona also had demographic characteristics that were within the range of the pure typology. California had the fewest Spanish surname county populations classifiable as pure typologies. These counties (seven in all), however, were located in the southern half of the state away from the Pacific Coast and the Mexican border. (See Figure 27.)

Besides the contiguous counties of California that had Spanish surname populations with characteristics of the pure typology, there was a region made up of eleven counties running from the Utah border southward through central Arizona to New Mexico, and then northward in New Mexico along the Arizona border, which had Spanish surname populations with characteristics like the pure typology. (See Figure 27.)

Texas was the only state in which the total non-Spanish surname population's demographic characteristics were all within the ranges specified in the pure non-Spanish surname typology. Consistent with this, there were more non-Spanish surname county populations in Texas with characteristics similar to the pure typology than in any other state. Of the counties with a thousand or more Spanish surname persons, 37 per cent had such configurations of demographic characteristics. (See Table 15.) At the other extreme, California had only two county non-Spanish surname populations with characteristics similar to the pure typology; Arizona had none.

Distribution of age category errors: An error in one or more age

[9]Thirty-five Spanish surname county populations had a lower rate of unemployment for females than the pure typology; 24 counties had lower rates for males and females; and 18 counties had lower rates for males only. Many of the Spanish surname county population that had low rates of unemployment for women had relatively few women in the labor force.

[10]Thirty-eight non-Spanish surname populations had higher rates of unemployment for males and females than the pure typology; 12 counties had higher rates for females only; and ten counties had higher rates for males only.

categories may be found in all the Spanish surname county populations along the Pacific Coast and the Mexican border, except for three in New Mexico and one each in Texas and Arizona. (See Figure 27.) The most common age category error for the above counties was the age category 20 to 49. For states, California and Texas had the highest proportion of Spanish surname county populations with one or more age category errors—79.4 and 34.8, respectively. All counties in California with one error or more had at least one error in an age category. Further, all Spanish surname county populations in California with only two errors had fewer persons 20 years of age and under and more 20 to 49 years of age than the pure typology. The Spanish surname population of California had the same errors as the two-error Spanish surname county populations. Texas, like California, had more Spanish surname persons between 20 and 49 years of age than the pure typology. About one in three of the Spanish surname county populations in Texas had at least one error in an age category.

Fifty-three per cent of the counties with 1,000 or more Spanish surname persons contained non-Spanish surname populations with one or more errors in an age category. New Mexico and Arizona had the highest proportions of such counties—69 and 62 per cent, respectively. All non-Spanish surname county populations in Arizona with one or more errors had an error in an age category. (See Table 15 and Figure 28.) In Texas, New Mexico, and Colorado nearly all Spanish surname county populations with one or more errors had an error in an age category. Further, in California all but one county with two or more errors had an error in an age category. The high error counties of northern Arizona and New Mexico had non-Spanish surname populations whose age structure resembled that of the pure Spanish surname typologies. (See Figure 28.) Most of these counties had two age category errors and many had three. The non-Spanish surname population of New Mexico had characteristics similar to the pure typology except for an error in the age category 50 and over. Like the non-Spanish surname state population, about 24 per cent of the non-Spanish surname county populations in New Mexico were like the pure typology except for one error in an age category. About 24 per cent of the counties of Texas and Colorado had similar characteristics. Also, the non-Spanish surname population of Colorado had characteristics similar to the pure typology except for the age category 20 to 49.

Distribution of economic status errors: With respect to errors in economic status for Spanish surname county populations, three patterns should be noted. First, in California the Spanish surname county populations with four or more errors tended to have somewhat lower unemployment rates, particularly for women, as well as an older age structure than characteristic of the pure typology. Many of these counties also had higher indexes of educational attainment and/or

lower indexes of fertility than the pure Spanish surname typology. Figure 28 shows that these counties with four or more errors are located in the north central region of the state in or near the San Francisco metropolitan area.

Second, the demographic characteristics of the Spanish surname population of New Mexico deviated from the ranges of the pure Spanish surname typology with respect to the percentage of women 14 and over in the civilian labor force who were unemployed. The above situation is reflected in the Spanish surname populations of the counties. Sixteen of the twenty-nine counties with a thousand or more Spanish surname persons had Spanish surname populations with an error in economic status. In nine of these counties, the error in economic status was the only error. Further, of the sixteen counties with an error in economic status, in twelve the error occurred only in the percentage of women unemployed.

Third, Texas also had a Spanish surname population with a lower rate of unemployment for women than the pure typology. For all the other demographic characteristics considered, except percentage of population 20 to 49 years of age, the Spanish surname population of Texas had statistics within the ranges designated in the pure typology. Reflecting the state pattern, twenty-six out of the ninety-two counties with a thousand or more Spanish surname persons had demographic characteristics like the pure Spanish surname typology except for an error in economic status. (See Table 14.)

Errors in economic status for non-Spanish surname county populations occurred most often in California and Arizona and represent higher unemployment rates for males and females. (See Table 15.) Nearly all non-Spanish surname county populations in California and southern Arizona had an error in economic status. The non-Spanish surname populations of California and Arizona differed from the pure non-Spanish surname typology only with respect to the per cent of males and females 14 years of age and older in the civilian labor force who were unemployed. The most common non-Spanish surname county empirical typology was similiar to that of the state. Of the counties with a thousand or more Spanish surname population, 58 per cent had the above pattern of demographic characteristics. (See Table 15.) And as previously indicated, an additional 26.5 per cent of the counties in California with one thousand or more Spanish surname persons had non-Spanish surname populations with an error in economic status and an error in an age category. In Arizona all but one of the non-Spanish surname county populations with only one error had an error in economic status.

Education, fertility, and marital status errors: For both Spanish surname and non-Spanish surname county populations, errors in educational attainment and/or fertility generally occurred in counties

with four or more errors. In addition, there was a tendency for errors in educational attainment and fertility to occur together, along with an error in one or more age categories. As indicated earlier, the Spanish surname county populations with higher indexes of educational attainment and/or lower fertility ratios than the pure typology were found in counties with four or more errors located in the north central region of California in or near the San Francisco metropolitan area.

The non-Spanish surname county populations with errors in educational attainment and/or fertility may be found in northern Arizona and New Mexico. All nine counties in this region had lower indexes of educational attainment, higher fertility ratios, fewer persons 50 years of age and over, and more under 20 years of age. Seven of the counties in this region also had one or more errors in a marital status category.

Typological analysis of Mexican border states: In order to compare the demographic structure of the six Mexican border states with the Spanish surname and non-Spanish surname demographic structure of the southwestern United States, empirical typologies for *municipios* similar to those for counties were constructed. The empirical typologies for Mexican *municipios* differed from the typologies for United States counties only in the number of demographic measures used. Three demographic characteristics—age distribution, fertility ratio, and educational attainment—were used to construct the typologies. The pure Spanish surname typology was used as a base line from which deviations were computed. The distribution of empirical typologies for the Mexican border states by *municipios* are presented in Figure 29.

It can be seen from the map that in general the populations of *municipios* can be classified within the ranges characteristic of the pure Spanish surname typology. Out of 264 *municipios* only 42 had one or more errors. Further, only ten *municipios* had more than one error. The most common error was in the age category 20 to 49. Twenty-nine *municipios* had such an error. The smallest number of errors occurred in educational attainment. No *municipio* deviated from the pure Spanish surname typology with respect to this measure. Thus, it can be said, for Mexican border states as for United States border states, that an association existed between age distribution, fertility, and educational attainment. Like the Spanish surname county populations of the United States, the populations of Mexican *municipios* had higher fertility ratios, lower levels of educational attainment, and higher proportions of persons under 20 years of age than the non-Spanish surname population of the southwestern United States and the United States as a whole.

While few error typologies are to be found among the Mexican *municipios,* those that do exist are not randomly distributed. The errors that exist are found in Baja California, T.N., in Sonora along

the Gulf of Lower California, in *municipios* which are at major points of entry into the United States, and in more urbanized areas near the border and away from the border.

SUMMARY

The major purposes of this paper were to describe the distribution of selected demographic measures on both sides of the United States-Mexican border and to present a comparative analysis of the demographic structure of Spanish surname and non-Spanish surname populations within the states and counties in the southwestern part of the United States. A summary of the analysis is presented below.

The typological analysis indicates that there are wide differences between the non-Spanish surname and Spanish surname populations of the southwestern United States for the demographic measures considered. These differences existed at both state and county levels. Spanish surname populations tended to have more persons under 20 years of age, and fewer 20 years of age and over, than the non-Spanish surname populations. The Spanish surname populations also had lower proportions of males and females married and correspondingly higher proportions single, higher rates of unemployment, higher fertility ratios, and lower levels of educational attainment.

The analysis of the sex ratios and the patterns of residential distribution indicated that the sex ratios of Spanish surname populations tended to be higher than non-Spanish surname populations, and that the non-Spanish surname state populations had higher proportions of persons classified as urban than the Spanish surname state populations.

In addition, the analysis of Spanish surname and non-Spanish surname populations shows that there was considerable "piling up" of Spanish surname persons in economically productive ages in the counties along the Pacific Coast and the United States-Mexican border.

A comparison of the demographic characteristics of the Mexican border states with those of the United States revealed that in general the Mexican states had higher proportions of young people, lower levels of educational attainment, and higher fertility ratios than the non-Spanish surname populations of the United States. For these characteristics the Mexican border states had statistics like the pure Spanish surname typology. With respect to the border, the proportion of persons under 20 years of age and the proportion of persons with no education in *municipios* appeared to increase directly with distance from the border. Further, like the United States counties bordering Mexico, the Mexican *municipios* bordering the United States tended to have high proportions of persons 20 to 49 years of age. This was particularly true at points of entry into the United States. Also, the proportion of persons 20 to 49 years of age in *municipios* increased with urbanization.

States on both sides of the international border experienced rapid population growth during the decade 1940 to 1950. The most rapid growth for United States border states occurred in California. The most rapid growth for Mexican border states occurred in Baja California, T.N. For the United States border states, rate of population growth was closely related to the presence of an urban place; for the Mexican border states, to points of entry into the United States.

While it is not the purpose of this paper to demonstrate relationships between demographic characteristics and social organization, we would suggest that, since demographic measures may be used as clues to social organization, there is the need for continuing research relating the two. Several sets of propositions follow. If we take high fertility, high level of unemployment, and low level of educational attainment as measures of low socioeconomic position, it may be inferred from the data that the aggregate classified as Spanish surname persons tended to occupy a lower socioeconomic position in the social structure of the Southwest than non-Spanish surname populations. We may further suggest that the occupancy of low socioeconomic positions may reflect in part the operation of various boundary maintenance mechanisms on part of the numerically large and powerful non-Spanish surname groups. It may also reflect the operation of boundary maintenance mechanisms within Spanish surname groups. In addition, if we view the demographic characteristics used—particularly fertility ratios, marital status, and level of educational attainment—as behavioral correlates of sociocultural systems, then the existence of at least two different sociocultural systems may be inferred from the typological analysis of the data. One sociocultural system would be identified with areas having pure Spanish surname demographic characteristics, the other with areas having pure non-Spanish surname characteristics. Further, the extent to which the demographic characteristics of a county Spanish surname population approaches the pure non-Spanish surname type may indicate areas in which acculturation is taking place as well as the extent to which acculturation has taken place. The existence of similar demographic structures for the Mexican border states and for the Spanish surname populations of the United States suggests the proposition that the population aggregates of Mexico and the Spanish surname populations of the United States may share a similar cultural tradition, and that there may also exist extensive systemic linkage between the two populations.

Appendix Table I. Number and per cent of Spanish surname population and percentage distribution by residence for Spanish surname and non-Spanish surname population, by county in the five southwestern states, 1950*

State & county	No. Spanish surname population, 1950	% of total population	% of Spanish surname population			% of non-Spanish surname population		
			Urban	Rural-non-farm	Rural-farm	Urban	Rural-non-farm	Rural-farm
Arizona	128,318	17.1	61.3	31.6	7.0	54.3	34.8	10.9
Apache	1,623	5.8	—	95.7	4.3	—	72.7	27.3
Cochise	10,146	32.2	55.6	40.9	3.5	47.9	37.6	14.6
Coconino	3,728	15.6	67.1	32.1	0.8	25.6	65.5	8.9
Gila	5,397	22.3	59.2	40.2	0.5	40.3	55.7	4.1
Graham	2,591	20.0	22.6	59.5	17.9	30.5	49.2	20.2
Greenlee	5,368	41.9	94.1	4.5	1.5	66.7	22.7	10.7
Maricopa	42,560	12.8	69.1	21.6	9.3	72.1	20.2	7.7
Mohave	635	7.5	—	—	—	—	—	—
Navajo	2,739	9.3	47.2	52.0	0.8	19.6	59.6	20.8
Pima	27,224	19.3	74.2	22.8	3.0	51.0	43.3	5.8
Pinal	10,794	25.0	21.7	59.3	19.0	30.0	35.7	34.2
Santa Cruz	5,287	56.6	70.4	22.5	7.0	59.9	25.8	14.4
Yavapai	3,903	15.6	27.7	70.7	1.7	41.0	48.8	10.2
Yuma	6,323	22.6	52.1	37.6	10.3	48.8	35.4	15.8
California	760,453	7.2	75.8	16.6	7.6	81.0	13.8	5.2
Alameda	35,578	4.8	86.1	10.8	3.1	95.2	3.9	0.9
Alpine	4	1.7	—	—	—	—	—	—
Amador	643	7.0	—	—	—	—	—	—
Butte	1,119	1.7	39.3	41.3	19.4	42.0	43.6	14.4
Calaveras	477	4.8	—	—	—	—	—	—
Colusa	1,154	9.9	20.2	54.6	25.2	26.7	48.4	24.9
Contra Costa	14,968	5.0	69.7	24.1	6.2	71.9	25.7	2.4
Del Norte	145	1.8	—	—	—	—	—	—
El Dorado	175	1.1	—	—	—	—	—	—
Fresno	32,678	11.8	42.7	37.1	20.2	58.0	22.4	19.6
Glenn	604	3.9	—	—	—	—	—	—
Humboldt	631	0.9	—	—	—	—	—	—
Imperial	19,028	30.2	58.7	17.6	23.7	45.0	36.2	18.8
Inyo	350	3.0	—	—	—	—	—	—
Kern	18,579	8.1	70.4	20.4	9.2	58.4	31.9	9.7
Kings	8,183	17.5	36.3	36.1	27.6	36.8	34.2	29.0

*U. S. Bureau of the Census, *U. S. Census of Population, 1950*, Vol. IV, *Special Reports, Part III, Chapter C: Persons of Spanish Surname* (Washington: Government Printing Office, 1953).

Appendix Table I. Continued

State & county	No. Spanish surname population, 1950	% of total population	% of Spanish surname population			% of non-Spanish surname population		
			Urban	Rural-nonfarm	Rural-farm	Urban	Rural-nonfarm	Rural-farm
Lake	81	0.7	—	—	—	—	—	—
Lassen	877	4.7	—	—	—	—	—	—
Los Angeles	287,614	6.9	96.1	2.9	1.0	97.6	1.9	0.5
Madera	4,664	12.6	54.7	28.0	17.3	36.7	29.0	34.4
Marin	1,826	2.1	76.9	15.9	7.2	79.8	17.7	2.5
Mariposa	50	1.0	—	—	—	—	—	—
Mendocino	700	1.7	—	—	—	—	—	—
Merced	7,393	10.6	40.3	32.8	26.8	30.5	39.0	30.6
Modoc	163	1.7	—	—	—	—	—	—
Mono	9	0.4	—	—	—	—	—	—
Monterey	15,655	12.0	29.9	50.7	19.3	57.8	32.8	9.4
Napa	1,708	3.7	20.8	58.9	20.3	32.9	54.9	12.2
Nevada	231	1.2	—	—	—	—	—	—
Orange	23,680	11.0	52.4	44.1	3.5	69.5	23.5	7.0
Placer	2,374	5.7	30.4	56.1	13.4	32.2	51.3	16.4
Plumas	231	1.7	—	—	—	—	—	—
Riverside	19,979	11.7	66.1	23.0	10.9	56.5	33.2	10.4
Sacramento	14,883	5.4	70.8	20.1	9.1	75.0	19.2	5.8
San Benito	3,626	25.2	32.9	25.5	41.6	34.5	22.3	43.2
San Bernardino	35,330	12.5	78.0	19.5	2.5	64.8	28.9	6.4
San Diego	28,926	5.2	78.7	16.8	4.5	82.2	13.5	4.3
San Francisco	31,433	4.1	—	—	—	—	—	—
San Joaquin	19,739	9.8	70.1	17.2	12.8	69.1	16.9	14.1
San Luis Obispo	3,102	6.0	29.5	48.6	21.9	50.4	35.8	13.8
San Mateo	7,030	3.0	90.3	7.8	1.9	93.2	6.2	0.7
Santa Barbara	16,439	16.7	63.6	25.9	10.5	65.1	26.4	8.4
Santa Clara	35,306	12.2	68.3	16.8	14.9	75.2	16.4	8.4
Santa Cruz	2,511	3.8	65.8	23.0	11.2	64.6	26.9	8.4
Shasta	430	1.2	—	—	—	—	—	—
Sierra	81	3.4	—	—	—	—	—	—
Siskiyou	819	2.7	—	—	—	—	—	—
Solano	3,848	3.7	54.7	15.9	29.4	80.3	13.6	6.1
Sonoma	2,638	2.6	17.7	55.8	26.5	33.4	44.0	22.6
Stanislaus	5,875	4.6	37.1	41.6	21.3	41.3	39.1	19.5
Sutter	940	3.6	—	—	—	—	—	—
Tehama	356	1.8	—	—	—	—	—	—
Trinity	78	1.5	—	—	—	—	—	—
Tulare	16,743	11.2	34.7	43.4	21.9	31.6	42.0	26.4
Tuolumne	881	7.0	—	—	—	—	—	—

Appendix Table I. Continued

State & county	No. Spanish surname population 1950	% of total population	% of Spanish surname population			% of non-Spanish surname population		
			Urban	Rural-non-farm	Rural-farm	Urban	Rural-non-farm	Rural-farm
Ventura	21,697	18.9	62.5	26.5	11.0	53.0	33.9	13.1
Yolo	5,761	14.2	31.6	47.0	21.4	57.8	26.3	15.9
Yuba	430	1.8	—	—	—	—	—	—
Colorado	118,131	8.9	49.7	34.5	15.8	64.0	21.1	14.9
Adams	2,479	6.2	58.5	27.2	14.3	58.4	22.4	19.2
Alamosa	2,662	25.3	52.1	32.6	15.3	50.4	25.2	24.4
Arapahoe	1,088	2.1	89.2	7.6	3.1	78.2	15.8	6.0
Archuleta	1,397	46.1	—	65.8	34.2	—	60.3	39.7
Baca	32	0.4	—	—	—	—	—	—
Bent	1,318	15.0	62.6	25.0	12.4	32.1	32.1	35.6
Boulder	1,545	3.2	26.9	67.1	6.0	67.4	22.7	10.0
Chaffee	631	8.8	—	—	—	—	—	—
Cheyenne	6	0.2	—	—	—	—	—	—
Clear Creek	27	0.8	—	—	—	—	—	—
Conejos	6,387	62.8	—	57.5	42.5	—	56.9	43.1
Costilla	4,760	78.5	—	62.6	37.4	—	48.8	51.2
Crowley	978	18.7	—	—	—	—	—	—
Custer	40	2.5	—	—	—	—	—	—
Delta	968	5.6	—	—	—	—	—	—
Denver	24,950	6.0	100.0	—	—	100.0	—	—
Dolores	6	0.3	—	—	—	—	—	—
Douglas	66	1.9	—	—	—	—	—	—
Eagle	783	17.4	—	—	—	—	—	—
Elbert	29	0.6	—	—	—	—	—	—
El Paso	2,337	3.2	70.6	24.6	4.8	73.2	20.4	6.3
Fremont	1,175	6.4	59.5	32.3	8.3	49.0	33.1	17.9
Garfield	325	2.8	—	—	—	—	—	—
Gilpin	20	2.4	—	—	—	—	—	—
Grand	79	2.0	—	—	—	—	—	—
Gunnison	236	4.1	—	—	—	—	—	—
Hinsdale	—	—	—	—	—	—	—	—
Huerfano	3,437	32.6	45.9	23.5	30.6	56.5	29.2	14.3
Jackson	11	0.6	—	—	—	—	—	—
Jefferson	744	1.3	—	—	—	—	—	—
Kiowa	68	2.3	—	—	—	—	—	—
Kit Carson	102	1.2	—	—	—	—	—	—
Lake	891	14.5	—	—	—	—	—	—
La Plata	2,240	15.1	34.3	50.4	15.3	52.9	20.7	26.4
Larimer	1,780	4.1	22.5	46.2	31.2	51.0	32.8	16.2
Las Animas	11,031	42.6	42.3	46.2	11.5	50.7	31.5	17.8

Appendix Table I. Continued

State & county	No. Spanish surname population, 1950	% of total population	% of Spanish surname population			% of non-Spanish surname population		
			Urban	Rural-nonfarm	Rural-farm	Urban	Rural-nonfarm	Rural-farm
Lincoln	69	1.2	—	—	—	—	—	—
Logan	719	4.2	—	—	—	—	—	—
Mesa	1,543	4.0	35.5	50.3	14.2	37.3	36.5	26.2
Mineral	64	9.2	—	—	—	—	—	—
Moffat	156	2.6	—	—	—	—	—	—
Montezuma	770	7.7	—	—	—	—	—	—
Montrose	1,028	6.8	66.4	11.3	22.3	30.2	26.7	43.1
Morgan	1,088	6.0	1.9	26.4	71.7	31.2	27.9	40.9
Otero	6,036	23.9	37.9	53.4	8.7	49.4	31.0	19.6
Ouray	36	1.7	—	—	—	—	—	—
Park	—	—	—	—	—	—	—	—
Phillips	—	—	—	—	—	—	—	—
Pitkin	4	0.2	—	—	—	—	—	—
Prowers	1,142	7.7	30.6	53.8	15.6	47.3	26.0	26.7
Pueblo	14,802	16.4	76.0	17.8	6.2	82.2	10.7	7.1
Rio Blanco	16	0.3	—	—	—	—	—	—
Rio Grande	4,605	35.9	16.5	59.0	24.5	30.5	31.3	38.2
Routt	557	6.2	—	—	—	—	—	—
Saguache	1,410	24.9	—	83.0	17.0	100.0	61.7	38.3
San Juan	205	13.9	—	—	—	—	—	—
San Miguel	82	3.0	—	—	—	—	—	—
Sedgwick	371	7.3	—	—	—	—	—	—
Summit	—	—	—	—	—	—	—	—
Teller	20	0.7	—	—	—	—	—	—
Washington	112	1.5	—	—	—	—	—	—
Weld	8,647	12.8	12.8	50.3	36.8	32.7	28.5	38.9
Yuma	21	0.2	—	—	—	—	—	—
New Mexico	248,880	36.5	41.0	35.9	23.2	55.5	27.3	17.1
Bernalillo	43,729	30.0	70.8	23.9	5.3	79.1	18.5	2.5
Catron	1,201	34.0	—	60.6	39.4	—	57.2	42.8
Chaves	6,318	15.6	63.1	13.7	23.2	63.4	20.9	15.7
Colfax	7,835	46.7	42.8	45.6	11.6	54.8	28.7	16.5
Curry	3,660	15.7	91.0	7.1	1.9	71.0	11.3	17.6
De Baca	1,029	29.7	—	89.1	10.9	—	59.5	40.5
Dona Ana	20,883	52.8	28.7	38.1	33.2	33.9	44.5	21.6
Eddy	8,896	21.9	52.2	15.6	32.2	67.9	22.1	10.0
Grant	10,112	46.7	27.6	67.0	5.4	36.7	52.3	11.0
Guadalupe	5,065	74.8	—	73.1	26.9	—	83.9	16.1
Harding	1,456	48.3	—	63.3	36.7	—	44.7	55.3
Hidalgo	2,036	40.0	81.9	13.0	5.1	60.7	16.4	22.9

Appendix Table I. Continued

State & county	No. Spanish surname population, 1950	% of total population	% of Spanish surname population			% of non-Spanish surname population		
			Urban	Rural-non-farm	Rural-farm	Urban	Rural-non-farm	Rural-farm
Lea	718	2.3	—	—	—	—	—	—
Lincoln	2,840	38.3	—	29.1	70.9	—	N.A.	N.A.
Los Alamos	978	9.3	—	—	—	—	—	—
Luna	3,183	36.4	73.9	12.1	14.0	59.6	17.4	23.0
McKinley	4,067	14.8	92.2	7.4	0.4	34.0	35.5	30.6
Mora	7,433	85.2	—	39.4	60.6	—	53.9	46.1
Otero	3,469	23.3	58.5	35.0	6.5	41.5	41.1	17.4
Quay	3,599	25.8	77.7	11.5	10.8	54.2	15.1	30.8
Rio Arriba	20,056	80.2	—	50.0	50.0	—	71.4	28.6
Roosevelt	622	3.8	—	—	—	—	—	—
Sandoval	6,545	52.6	—	49.7	50.3	—	61.9	38.1
San Juan	1,742	9.5	19.7	26.8	53.5	19.9	34.8	45.3
San Miguel	20,524	77.4	48.8	27.4	23.8	62.5	24.9	12.5
Santa Fe	23,034	60.4	71.6	17.9	10.5	76.1	15.5	8.4
Sierra	1,534	21.3	39.0	34.6	26.4	70.2	17.6	12.2
Socorro	5,661	58.5	41.7	38.5	19.8	49.2	23.4	27.3
Taos	13,884	81.0	—	56.6	43.4	—	67.3	32.7
Torrance	3,865	48.2	—	74.5	25.5	—	50.0	50.0
Union	1,635	22.2	54.3	20.1	25.6	45.8	12.4	41.8
Valencia	11,271	50.1	18.9	59.2	21.9	21.1	45.9	32.9
Texas	1,033,768	13.4	68.1	18.8	13.1	61.9	20.8	17.3
Anderson	61	0.2	—	—	—	—	—	—
Andrews	26	0.5	—	—	—	—	—	—
Angelina	172	0.5	—	—	—	—	—	—
Aransas	783	18.4	—	—	—	—	—	—
Archer	17	0.2	—	—	—	—	—	—
Armstrong	76	3.4	—	—	—	—	—	—
Atascosa	9,441	47.1	11.9	49.3	38.8	26.0	31.8	42.2
Austin	153	1.0	—	—	—	—	—	—
Bailey	147	1.9	—	—	—	—	—	—
Bandera	167	3.8	—	—	—	—	—	—
Bastrop	1,737	8.9	55.0	26.4	18.6	49.3	19.3	31.4
Baylor	91	1.3	—	—	—	—	—	—
Bee	7,961	43.8	54.2	23.4	22.4	49.3	26.4	24.3
Bell	2,524	3.4	58.5	25.6	15.8	52.3	31.8	15.9
Bexar	176,877	35.3	93.2	5.2	1.6	88.0	9.0	3.0
Blanco	190	5.0	—	—	—	—	—	—
Borden	110	9.9	—	—	—	—	—	—
Bosque	79	0.7	—	—	—	—	—	—
Bowie	200	0.3	—	—	—	—	—	—

Appendix Table I. Continued

State & county	No. Spanish surname population, 1950	% of total population	% of Spanish surname population			% of non-Spanish surname population		
			Urban	Rural-nonfarm	Rural-farm	Urban	Rural-nonfarm	Rural-farm
Brazoria	2,187	4.7	52.7	44.7	2.6	33.5	53.2	13.3
Brazos	2,499	6.5	66.4	17.4	16.2	67.9	18.0	14.1
Brewster	3,056	41.8	74.3	18.3	7.4	70.3	20.8	8.9
Briscoe	12	0.3	—	—	—	—	—	—
Brooks	5,894	64.1	71.0	5.4	23.6	76.5	11.0	12.5
Brown	681	2.4	—	—	—	—	—	—
Burleson	1,032	7.9	—	42.2	57.8	—	49.7	50.3
Burnet	417	4.0	—	—	—	—	—	—
Caldwell	5,547	28.7	45.8	16.4	37.8	53.1	17.4	29.5
Calhoun	2,001	21.7	75.3	5.1	19.6	56.7	27.0	16.3
Callahan	153	1.7	—	—	—	—	—	—
Cameron	81,080	64.8	58.3	22.9	18.8	64.1	19.6	16.3
Camp	3	†	—	—	—	—	—	—
Carson	169	2.5	—	—	—	—	—	—
Cass	33	0.1	—	—	—	—	—	—
Castro	78	1.4	—	—	—	—	—	—
Chambers	22	0.3	—	—	—	—	—	—
Cherokee	74	0.2	—	—	—	—	—	—
Childress	83	0.7	—	—	—	—	—	—
Clay	12	0.1	—	—	—	—	—	—
Cochran	355	6.0	—	—	—	—	—	—
Coke	260	6.4	—	—	—	—	—	—
Coleman	513	3.3	—	—	—	—	—	—
Collin	403	1.0	—	—	—	—	—	—
Collingsworth	131	1.4	—	—	—	—	—	—
Colorado	930	5.3	—	—	—	—	—	—
Comal	4,440	27.1	82.7	12.9	4.4	71.7	8.2	20.1
Comanche	29	0.2	—	—	—	—	—	—
Concho	943	18.6	—	—	—	—	—	—
Cooke	24	0.1	—	—	—	—	—	—
Coryell	333	2.0	—	—	—	—	—	—
Cottle	311	5.1	—	—	—	—	—	—
Crane	34	0.9	—	—	—	—	—	—
Crockett	1,404	35.3	84.4	1.1	14.5	66.0	19.2	14.9
Crosby	571	6.0	—	—	—	—	—	—
Culberson	719	39.4	—	—	—	—	—	—
Dallam	508	6.6	—	—	—	—	—	—
Dallas	14,430	2.3	94.1	4.3	1.5	89.7	8.4	1.9
Dawson	2,885	15.1	42.4	26.7	30.9	58.4	12.3	29.3
Deaf Smith	618	6.8	—	—	—	—	—	—

†Spanish surname population less than 0.1.

Appendix Table I. Continued

State & county	No. Spanish surname population, 1950	% of total population	% of Spanish surname population			% of non-Spanish surname population		
			Urban	Rural-non-farm	Rural-farm	Urban	Rural-non-farm	Rural-farm
Delta	43	0.5	—	—	—	—	—	—
Denton	242	0.6	—	—	—	—	—	—
De Witt	4,071	17.7	55.5	13.6	30.9	52.5	13.3	34.2
Dickens	463	6.5	—	—	—	—	—	—
Dimmit	7,683	72.1	38.4	50.1	11.5	45.8	23.0	31.2
Donley	17	0.3	—	—	—	—	—	—
Duval	10,724	68.6	54.7	14.6	30.7	20.8	57.2	22.0
Eastland	400	1.7	—	—	—	—	—	—
Ector	1,599	3.8	15.9	84.1	—	72.2	27.4	0.4
Edwards	1,044	35.9	—	69.6	30.4	—	56.1	43.9
Ellis	1,276	2.8	20.8	28.9	50.3	42.3	26.5	31.2
El Paso	89,555	45.9	80.6	12.5	6.9	68.9	28.7	2.4
Erath	51	0.3	—	—	—	—	—	—
Falls	2,021	7.6	21.4	23.0	55.6	27.0	30.1	43.0
Fannin	92	0.3	—	—	—	—	—	—
Fayette	617	2.6	—	—	—	—	—	—
Fisher	809	7.3	—	—	—	—	—	—
Floyd	175	1.7	—	—	—	—	—	—
Foard	146	3.5	—	—	—	—	—	—
Fort Bend	6,597	21.2	22.1	40.6	37.3	19.4	45.8	34.8
Franklin	—	—	—	—	—	—	—	—
Freestone	54	0.3	—	—	—	—	—	—
Frio	6,250	0.3	46.7	35.9	17.4	38.1	30.0	31.9
Gaines	232	2.6	—	—	—	—	—	—
Galveston	6,914	6.1	93.6	6.0	0.4	86.4	12.0	1.5
Garza	612	9.7	—	—	—	—	—	—
Gillespie	470	4.5	—	—	—	—	—	—
Glasscock	102	9.4	—	—	—	—	—	—
Goliad	2,173	34.9	—	56.2	43.8	—	50.1	49.9
Gonzales	4,357	20.6	29.3	45.8	24.9	26.1	25.5	48.4
Gray	81	0.3	—	—	—	—	—	—
Grayson	466	0.7	—	—	—	—	—	—
Gregg	144	0.2	—	—	—	—	—	—
Grimes	442	2.9	—	—	—	—	—	—
Guadalupe	6,047	23.8	40.9	32.2	26.9	37.5	28.3	34.2
Hale	1,251	4.4	39.5	32.7	27.8	50.3	20.4	29.4
Hall	136	1.2	—	—	—	—	—	—
Hamilton	39	0.4	—	—	—	—	—	—
Hansford	5	0.1	—	—	—	—	—	—
Hardeman	22	0.2	—	—	—	—	—	—

Appendix Table I. Continued

State & county	No. Spanish surname population, 1950	% of total population	% of Spanish surname population			% of non-Spanish surname population		
			Urban	Rural-nonfarm	Rural-farm	Urban	Rural-nonfarm	Rural-farm
Hardin	166	0.8	—	—	—	—	—	—
Harris	39,171	4.9	95.0	4.2	0.8	89.8	9.0	1.2
Harrison	34	0.1	—	—	—	—	—	—
Hartley	27	1.4	—	—	—	—	—	—
Haskell	870	6.3	—	—	—	—	—	—
Hays	6,130	34.4	63.4	21.0	15.6	52.0	26.6	21.5
Hemphill	69	1.7	—	—	—	—	—	—
Henderson	50	0.2	—	—	—	—	—	—
Hidalgo	112,422	70.1	56.4	25.4	18.2	59.4	17.7	22.9
Hill	393	1.3	—	—	—	—	—	—
Hockler	1,000	4.9	32.0	20.4	47.6	40.9	25.6	33.4
Hood	41	0.8	—	—	—	—	—	—
Hopkins	38	0.2	—	—	—	—	—	—
Houston	48	0.2	—	—	—	—	—	—
Howard	3,137	11.7	72.1	15.5	12.4	63.7	23.9	12.4
Hudspeth	2,866	66.7	—	36.6	63.4	—	63.5	36.5
Hunt	297	0.7	—	—	—	—	—	—
Hutchinson	230	0.7	—	—	—	—	—	—
Irion	292	18.4	—	—	—	—	—	—
Jack	16	0.2	—	—	—	—	—	—
Jackson	1,865	14.4	25.1	31.1	43.8	30.6	32.3	37.0
Jasper	34	0.2	—	—	—	—	—	—
Jeff Davis	1,153	55.2	—	75.5	24.5	—	70.7	29.3
Jefferson	4,274	2.2	95.4	3.9	0.7	90.3	8.3	1.2
Jim Hogg	4,098	76.0	81.6	4.6	13.8	74.2	18.4	7.4
Jim Wells	14,878	53.2	70.5	16.7	12.8	69.3	17.6	13.1
Johnson	278	0.9	—	—	—	—	—	—
Jones	1,222	5.5	55.9	11.9	32.2	54.5	14.1	31.4
Karnes	6,786	39.6	40.7	16.3	43.0	39.2	16.1	44.7
Kaufman	136	0.4	—	—	—	—	—	—
Kendall	711	13.1	—	—	—	—	—	—
Kenedy	553	87.5	—	—	—	—	—	—
Kent	125	5.6	—	—	—	—	—	—
Kerr	1,400	10.0	81.7	12.9	5.4	51.9	31.6	16.5
Kimble	599	13.0	—	—	—	—	—	—
King	21	2.4	—	—	—	—	—	—
Kinney	1,432	53.7	—	88.8	11.2	—	74.4	25.7
Kleberg	10,306	46.9	76.3	10.7	13.0	77.3	13.6	9.1
Knox	858	8.5	—	—	—	—	—	—
Lamar	88	0.2	—	—	—	—	—	—

Appendix Table I. Continued

State & county	No. Spanish surname population, 1950	% of total population	% of Spanish surname population			% of non-Spanish surname population		
			Urban	Rural-non-farm	Rural-farm	Urban	Rural-non-farm	Rural-farm
Lamb	1,097	5.5	45.3	20.0	34.7	31.9	24.9	43.1
Lampasas	575	5.8	—	—	—	—	—	—
LaSalle	5,044	67.4	65.9	21.4	12.7	44.7	21.0	34.3
Lavaca	592	2.7	—	—	—	—	—	—
Lee	118	1.2	—	—	—	—	—	—
Leon	31	0.3	—	—	—	—	—	—
Liberty	279	1.0	—	—	—	—	—	—
Limestone	480	1.9	—	—	—	—	—	—
Lipscomb	20	0.5	—	—	—	—	—	—
Live Oak	3,382	37.4	—	45.5	54.5	—	55.5	44.5
Llano	137	2.5	—	—	—	—	—	—
Loving	45	19.8	—	—	—	—	—	—
Lubbock	6,477	6.4	61.0	8.8	30.2	77.0	12.6	10.4
Lynn	1,117	10.1	25.4	23.0	51.6	25.9	23.8	50.3
McCulloch	1,660	14.2	35.0	46.3	18.7	53.4	16.4	30.2
McLennan	4,445	3.5	77.5	9.0	13.5	73.2	16.2	10.6
McMullen	431	36.3	—	—	—	—	—	—
Madison	35	0.4	—	—	—	—	—	—
Marion	1	0.0	—	—	—	—	—	—
Martin	1,011	18.2	—	22.7	77.3	—	41.7	58.3
Mason	357	7.2	—	—	—	—	—	—
Matagorda	2,242	10.4	73.7	12.6	13.7	54.7	22.4	22.9
Maverick	9,047	73.6	61.9	24.6	13.5	51.6	22.1	26.3
Medina	5,757	33.8	32.9	51.5	15.6	20.4	34.8	44.8
Menard	741	17.7	—	—	—	—	—	—
Midland	1,584	6.1	89.6	3.3	7.1	83.9	10.0	6.1
Milam	1,676	7.1	17.4	26.5	56.1	21.7	32.1	46.2
Mills	65	1.1	—	—	—	—	—	—
Mitchell	1,503	10.5	30.3	21.1	48.6	49.2	22.3	28.6
Montague	20	0.1	—	—	—	—	—	—
Montgomery	524	2.1	—	—	—	—	—	—
Moore	199	1.5	—	—	—	—	—	—
Morris	56	0.6	—	—	—	—	—	—
Motley	135	3.4	—	—	—	—	—	—
Nacogdoches	492	1.6	—	—	—	—	—	—
Navarro	410	1.0	—	—	—	—	—	—
Newton	—	—	—	—	—	—	—	—
Nolan	1,215	6.1	69.4	10.8	19.8	68.7	14.5	16.7
Nueces	58,939	35.6	87.8	6.0	6.2	83.8	11.8	4.3
Ochiltree	8	0.1	—	—	—	—	—	—

Appendix Table 1. Continued

State & county	No. Spanish surname population, 1950	% of total population	% of Spanish surname population			% of non-Spanish surname population		
			Urban	Rural-nonfarm	Rural-farm	Urban	Rural-nonfarm	Rural-farm
Oldham	16	1.0	—	—	—	—	—	—
Orange	419	1.0	—	—	—	—	—	—
Palo Pinto	185	1.1	—	—	—	—	—	—
Panola	18	0.1	—	—	—	—	—	—
Parker	289	1.3	—	—	—	—	—	—
Parmer	140	2.4	—	—	—	—	—	—
Pecos	3,576	36.0	54.8	25.4	19.8	39.1	44.7	16.3
Polk	83	0.5	—	—	—	—	—	—
Potter	1,847	2.5	98.8	1.2	—	92.4	6.4	1.2
Presidio	5,133	69.8	46.0	36.5	17.5	56.1	30.0	13.9
Rains	2	†	—	—	—	—	—	—
Randall	101	0.7	—	—	—	—	—	—
Reagan	148	4.7	—	—	—	—	—	—
Real	356	14.4	—	—	—	—	—	—
Red River	21	0.1	—	—	—	—	—	—
Reeves	4,605	39.2	54.8	16.9	28.3	77.5	13.7	8.8
Refugio	2,630	26.0	47.0	35.4	17.6	45.8	42.1	12.0
Roberts	18	1.7	—	—	—	—	—	—
Robertson	1,267	6.4	32.9	21.0	46.1	37.6	27.4	35.0
Rockwall	78	1.3	—	—	—	—	—	—
Runnels	1,372	8.2	75.6	14.1	10.3	45.1	15.0	39.9
Rusk	75	0.2	—	—	—	—	—	—
Sabine	10	0.1	—	—	—	—	—	—
San Augustine	—	—	—	—	—	—	—	—
San Jacinto	7	0.1	—	—	—	—	—	—
San Patricio	18,462	51.5	37.5	43.9	18.6	52.6	30.4	17.0
San Saba	571	6.6	—	—	—	—	—	—
Schleicher	530	18.6	—	—	—	—	—	—
Scurry	565	2.5	—	—	—	—	—	—
Shackelford	16	0.3	—	—	—	—	—	—
Shelby	25	0.1	—	—	—	—	—	—
Sherman	26	1.1	—	—	—	—	—	—
Smith	216	0.3	—	—	—	—	—	—
Somervell	4	0.2	—	—	—	—	—	—
Starr	12,452	89.3	26.2	51.0	22.8	48.7	48.1	3.2
Stephens	153	1.4	—	—	—	—	—	—
Sterling	249	19.4	—	—	—	—	—	—
Stonewall	155	4.2	—	—	—	—	—	—
Sutton	1,577	42.1	65.1	32.2	2.7	74.1	7.4	18.5
Swisher	73	0.9	—	—	—	—	—	—

Appendix Table I. Concluded

State & county	No. Spanish surname population, 1950	% of total population	% of Spanish surname population			% of non-Spanish surname population		
			Urban	Rural-non-farm	Rural-farm	Urban	Rural-non-farm	Rural-farm
Tarrant	8,552	2.4	97.1	2.4	0.5	89.3	7.6	3.1
Taylor	2,026	3.2	66.2	33.1	0.7	72.1	20.4	7.5
Terrell	1,648	51.7	—	89.5	10.5	—	78.1	21.9
Terry	1,084	8.3	1.9	54.3	43.8	51.1	13.6	35.4
Throckmorton	34	0.9	—	—	—	—	—	—
Titus	62	0.4	—	—	—	—	—	—
Tom Green	6,896	11.7	85.7	8.8	5.5	88.8	4.3	6.9
Travis	15,365	9.5	79.6	12.8	7.6	85.0	10.1	4.9
Trinity	34	0.3	—	—	—	—	—	—
Tyler	42	0.4	—	—	—	—	—	—
Upshur	24	0.1	—	—	—	—	—	—
Upton	471	8.9	—	—	—	—	—	—
Uvalde	6,807	42.5	60.5	33.2	6.3	49.5	27.6	23.0
Val Verde	10,488	63.0	88.6	4.9	6.5	80.0	9.7	10.3
Van Zandt	100	0.4	—	—	—	—	—	—
Victoria	7,334	23.5	49.2	32.5	18.3	52.3	31.5	16.1
Walker	328	1.6	—	—	—	—	—	—
Waller	227	1.9	—	—	—	—	—	—
Ward	2,524	18.9	27.2	43.4	29.4	52.0	45.8	2.2
Washington	120	0.6	—	—	—	—	—	—
Webb	47,525	84.7	93.6	2.7	3.7	86.4	9.4	4.2
Wharton	4,670	12.9	20.4	44.0	35.6	31.0	35.8	33.2
Wheeler	18	0.2	—	—	—	—	—	—
Wichita	1,808	1.8	94.0	4.4	1.6	81.4	15.1	3.5
Wilbarger	274	1.3	—	—	—	—	—	—
Willacy	13,472	64.4	43.2	49.5	7.3	44.6	30.1	25.3
Williamson	3,706	9.5	43.5	27.7	28.8	35.3	25.8	38.9
Wilson	5,070	34.6	—	73.8	26.2	—	37.8	62.2
Winkler	392	3.9	—	—	—	—	—	—
Wise	64	0.4	—	—	—	—	—	—
Wood	8	†	—	—	—	—	—	—
Yoakum	78	1.8	—	—	—	—	—	—
Young	44	0.3	—	—	—	—	—	—
Zapata	4,144	94.1	—	68.3	31.7	—	73.2	26.8
Zavala	7,690	68.7	69.5	18.0	12.5	52.7	19.3	28.0

Appendix Table II. Age groups, sex ratios, and fertility ratios for Spanish surname and non-Spanish surname populations, by county in selected southwestern states, 1950*

State & county	% aged 20–49		% aged 50 & over		Sex ratio		Fertility ratio	
	Spanish surname pop.	Non-Sp. surname pop.	Spanish surname pop.	Non-Sp. surname pop.	Spanish surname pop.	Non-Sp. surname pop.	Spanish surname pop.	Non-Sp. surname pop.
Arizona	38.2	43.7	11.3	19.1	103	102	722	513
Apache	32.0	34.0	10.2	11.2	106	103	886	747
Cochise	36.3	40.0	12.7	26.6	91	97	661	474
Coconino	37.6	42.0	13.3	14.0	105	106	656	648
Gila	37.8	41.3	10.7	19.7	103	102	759	568
Graham	33.2	37.7	12.3	17.4	106	106	720	631
Greenlee	39.1	44.3	8.8	13.3	106	109	790	646
Maricopa	37.5	44.8	10.4	19.7	102	100	777	473
Navajo	32.4	36.4	14.2	14.2	102	102	794	740
Pima	39.9	47.6	12.2	19.8	100	101	643	439
Pinal	38.3	41.7	9.9	15.9	108	113	789	636
Santa Cruz	39.1	41.6	13.5	26.8	85	102	591	452
Yavapai	34.7	40.1	15.5	27.5	104	109	659	462
Yuma	45.4	44.8	10.2	16.7	141	108	748	544
California	43.6	46.3	11.9	24.2	108	100	623	442
Alameda	46.9	48.0	13.4	24.4	105	96	567	422
Butte	46.5	40.1	14.7	26.4	123	105	645	498
Colusa	45.4	39.8	10.6	26.8	168	113	802	537
Contra Costa	45.8	49.0	9.4	14.0	116	113	635	587
Fresno	38.2	44.2	10.0	20.9	107	103	749	487
Imperial	46.9	45.6	8.9	16.6	137	113	671	555
Kern	38.5	45.9	10.3	16.5	111	107	809	530
Kings	37.3	42.2	10.1	19.2	104	103	800	537
Los Angeles	44.7	47.1	12.2	25.8	99	93	569	399
Madera	35.3	41.1	10.6	18.9	108	108	704	566
Marin	65.1	50.0	9.7	21.0	300	113	547	489
Merced	39.6	44.7	10.1	18.1	114	113	789	570
Monterey	45.6	48.0	10.8	18.0	142	117	694	509
Napa	46.7	40.4	16.5	31.5	108	105	601	447
Orange	39.6	43.1	11.7	26.4	106	96	665	490
Placer	47.5	41.2	14.7	28.8	133	108	565	457
Riverside	38.4	41.8	11.0	26.6	112	100	752	484

*U. S. Bureau of the Census, *U. S. Census of Population, 1950*, Vol. IV, *Special Reports, Part III, Chapter C: Persons of Spanish Surname*, Table 9 (Washington: Government Printing Office, 1953).

Appendix Table II. Continued

State & county	% aged 20–49		% aged 50 & over		Sex ratio		Fertility ratio	
	Spanish surname pop.	Non-Sp. surname pop.	Spanish surname pop.	Non-Sp. surname pop.	Spanish surname pop.	Non-Sp. surname pop.	Spanish surname pop.	Non-Sp. surname pop.
Sacramento	47.0	46.7	12.1	22.5	123	106	649	492
San Benito	41.5	41.3	13.8	20.1	128	109	680	524
San Bernardino	38.3	44.0	11.4	24.6	104	102	707	465
San Diego	44.1	47.4	11.5	21.6	109	109	608	490
San Francisco	49.8	49.2	15.2	28.2	99	101	463	343
San Joaquin	43.8	45.1	12.9	23.5	121	111	677	487
San Luis Obispo	39.8	42.6	15.2	26.3	114	110	591	511
San Mateo	50.7	48.5	11.5	20.0	113	100	619	526
Santa Barbara	44.1	44.4	12.6	26.8	119	95	634	437
Santa Clara	42.7	45.3	11.0	24.7	104	98	636	440
Santa Cruz	41.8	38.5	15.5	33.9	114	97	548	456
Solano	48.1	49.4	14.9	16.6	150	116	626	573
Sonoma	45.4	40.4	13.0	28.3	118	102	407	472
Stanislaus	43.8	41.7	12.0	23.0	112	102	652	491
Tulare	37.1	40.9	10.0	20.4	106	105	779	519
Ventura	41.7	46.6	11.8	21.9	120	101	721	471
Yolo	48.3	44.7	11.1	22.9	170	113	805	541
Colorado	35.1	43.4	11.2	23.6	104	101	818	476
Adams	33.9	47.6	9.2	14.8	114	116	1,009	594
Alamosa	35.5	42.3	12.1	19.5	98	103	731	530
Arapahoe	37.3	45.4	7.6	17.4	99	101	996	606
Archuleta	35.6	41.9	12.7	21.9	96	114	785	571
Bent	36.8	38.0	14.3	27.0	130	127	971	588
Boulder	33.5	44.9	11.8	24.0	109	102	820	391
Conejos	33.5	37.5	13.2	25.4	101	103	757	624
Costilla	31.7	37.0	14.2	17.8	99	105	876	651
Denver	37.9	46.6	9.9	25.8	99	93	810	403
El Paso	38.3	42.8	10.9	25.4	100	98	727	455
Fremont	43.0	38.1	11.7	31.5	159	109	645	445
Huerfano	31.9	36.8	17.5	27.6	105	104	764	520
La Plata	32.5	40.9	14.4	22.0	103	103	756	537
Larimer	31.2	41.6	10.5	25.3	105	103	884	474
Las Animas	33.5	39.4	15.2	26.5	101	102	765	482
Mesa	30.3	40.3	12.8	24.1	104	102	969	494
Montrose	31.4	39.1	17.6	22.4	102	108	787	549
Morgan	31.4	39.2	8.4	21.8	105	105	841	539
Otero	31.9	38.6	10.1	26.3	106	96	897	491

Appendix Table II. Continued

State & county	% aged 20–49		% aged 50 & over		Sex ratio		Fertility ratio	
	Spanish surname pop.	Non-Sp. surname pop.	Spanish surname pop.	Non-Sp. surname pop.	Spanish surname pop.	Non-Sp. surname pop.	Spanish surname pop.	Non-Sp. surname pop.
Prowers	30.8	39.6	8.9	20.7	105	106	987	588
Pueblo	38.2	43.1	10.2	25.8	101	99	793	481
Rio Grande	32.9	39.8	9.4	21.8	101	103	923	576
Saguache	31.6	38.4	11.4	19.5	117	106	911	629
Weld	34.2	40.7	8.5	22.1	115	102	801	503
New Mexico	35.7	45.4	12.6	16.2	102	105	770	543
Bernalillo	39.8	51.2	11.2	15.2	100	104	704	492
Catron	32.1	40.6	17.4	19.1	122	119	783	641
Chaves	36.4	47.4	8.9	14.7	104	110	876	585
Colfax	33.5	39.8	12.4	26.0	104	102	774	451
Curry	38.6	43.9	8.9	18.5	103	101	844	508
De Baca	34.6	38.5	13.0	25.4	111	102	914	494
Dona Ana	36.9	46.4	11.4	15.9	104	115	802	554
Eddy	35.7	46.0	7.6	14.2	107	102	954	535
Grant	37.3	44.6	11.3	20.0	101	103	704	491
Guadalupe	32.6	44.2	15.3	17.3	103	115	794	458
Harding	30.6	38.1	13.5	24.4	105	112	812	568
Hidalgo	38.3	41.8	9.8	20.2	104	106	758	583
Lincoln	31.8	40.2	14.0	24.9	111	116	925	513
Luna	37.5	40.8	10.1	21.3	106	98	726	561
McKinley	36.9	36.6	12.8	12.8	97	101	665	720
Mora	30.0	36.3	17.0	19.3	106	112	865	597
Otero	35.9	47.2	12.2	14.5	103	117	858	628
Quay	33.3	45.0	11.8	20.5	107	107	938	480
Rio Arriba	33.1	40.5	14.3	14.6	100	104	783	629
Sandoval	33.8	34.7	13.9	16.0	102	109	728	746
San Juan	31.9	36.4	13.7	14.4	108	103	802	665
San Miguel	35.3	45.5	14.8	24.3	103	102	764	449
Santa Fe	37.4	46.6	12.3	17.8	100	101	731	448
Sierra	37.3	36.4	17.5	34.3	96	100	487	410
Socorro	34.7	44.1	16.1	19.0	104	116	705	581
Taos	31.3	39.5	14.7	19.4	100	101	825	642
Torrance	30.0	40.1	12.4	19.5	104	110	853	533
Union	31.1	38.5	13.7	22.5	101	105	868	522
Valencia	33.1	39.8	13.9	16.1	104	105	755	651

Appendix Table II. Continued

State & county	% aged 20–49		% aged 50 & over		Sex ratio		Fertility ratio	
	Spanish surname pop.	Non-Sp. surname pop.	Spanish surname pop.	Non-Sp. surname pop.	Spanish surname pop.	Non-Sp. surname pop.	Spanish surname pop.	Non-Sp. surname pop.
Texas	38.6	45.0	10.7	20.2	103	100	773	467
Atascosa	33.4	39.4	11.1	23.5	105	102	878	548
Bastrop	31.4	35.9	14.4	27.7	100	98	833	566
Bee	35.9	43.1	11.2	23.1	100	97	826	462
Bell	38.0	47.7	8.8	18.2	122	128	886	519
Bexar	39.7	47.3	12.1	20.9	96	103	707	446
Brazoria	35.1	47.8	9.7	14.8	106	114	888	514
Brazos	38.1	46.2	9.2	16.2	122	124	925	537
Brewster	38.8	47.4	10.7	20.1	110	114	755	402
Brooks	37.4	51.3	11.8	12.3	100	104	746	556
Burleson	32.2	34.9	9.8	27.9	102	99	920	528
Caldwell	33.1	37.7	11.4	29.0	101	95	907	468
Calhoun	37.2	46.4	9.4	15.9	109	112	904	496
Cameron	39.6	47.7	9.1	19.7	104	99	806	488
Comal	35.3	42.1	11.1	26.2	107	94	877	463
Crockett	39.8	50.1	9.0	14.1	118	106	832	490
Dallas	40.4	50.0	10.5	18.9	102	93	721	419
Dawson	34.4	43.3	5.8	16.2	107	100	1,011	496
De Witt	36.1	38.3	12.9	28.5	99	97	721	505
Dimmit	38.8	40.1	10.2	25.9	121	98	866	532
Duval	37.9	46.5	14.4	12.8	103	107	699	526
Ector	41.5	52.8	5.8	9.4	108	105	840	495
Edwards	42.8	41.5	7.5	24.4	141	103	995	421
Ellis	33.6	38.7	9.7	25.3	107	96	806	486
El Paso	40.1	49.3	11.8	16.5	96	116	670	520
Falls	32.1	36.2	12.2	26.7	104	97	831	487
Fort Bend	38.3	43.4	9.2	20.7	127	109	894	490
Frio	35.0	38.7	11.0	26.7	100	102	887	513
Galveston	40.6	49.3	10.8	17.5	102	100	653	462
Goliad	35.6	38.1	12.7	30.0	107	99	736	509
Gonzales	34.7	36.8	10.6	27.8	104	97	897	527
Guadalupe	35.2	40.1	11.0	25.0	100	98	807	524
Hale	34.5	43.4	7.0	18.0	103	105	1,104	504
Harris	40.9	51.0	10.2	16.1	102	97	726	432
Hays	36.2	40.3	11.8	24.6	101	95	811	343
Hidalgo	39.8	43.2	8.5	22.6	109	99	816	483
Hockley	36.5	44.6	5.8	12.8	100	107	1,018	531
Howard	36.5	46.7	9.5	17.4	97	101	750	462

Appendix Table II. Continued

State & county	% aged 20–49		% aged 50 & over		Sex ratio		Fertility ratio	
	Spanish surname pop.	Non-Sp. surname pop.	Spanish surname pop.	Non-Sp. surname pop.	Spanish surname pop.	Non-Sp. surname pop.	Spanish surname pop.	Non-Sp. surname pop.
Hudspeth	45.4	48.1	5.1	17.1	135	108	1,021	519
Jackson	34.4	41.4	9.1	19.9	110	102	841	519
Jeff Davis	43.8	42.0	10.6	22.0	146	114	698	515
Jefferson	42.9	48.3	13.1	16.3	102	98	566	456
Jim Hogg	39.6	47.2	14.7	14.7	100	103	627	520
Jim Wells	36.7	48.4	10.6	14.0	102	104	811	504
Jones	32.3	40.5	8.1	23.4	101	101	1,000	482
Karnes	35.0	40.6	10.6	23.1	106	103	904	506
Kerr	38.6	41.0	11.6	27.5	118	99	907	425
Kinney	42.3	38.9	15.1	27.3	118	99	649	586
Kleberg	37.9	49.0	10.7	16.2	98	108	761	454
Lamb	33.0	42.0	6.1	16.7	115	103	1,124	511
LaSalle	35.7	38.2	12.1	26.9	101	105	821	605
Live Oak	34.2	39.5	8.5	23.0	106	104	942	528
Lubbock	35.5	49.3	6.9	14.1	109	106	945	474
Lynn	34.4	41.3	7.1	18.7	115	106	1,079	509
McCulloch	35.3	39.7	9.9	27.9	100	100	821	455
McLennan	39.5	45.0	11.5	22.0	111	99	760	435
Martin	35.6	40.8	5.9	17.7	115	107	962	547
Matagorda	36.5	41.8	11.2	20.5	106	99	853	511
Maverick	42.2	43.3	11.9	21.0	113	105	717	542
Medina	33.7	38.9	11.8	25.3	102	101	900	560
Midland	34.5	51.7	7.0	11.4	100	100	1,032	480
Milam	32.1	35.5	13.4	28.9	98	99	751	503
Mitchell	32.0	44.4	8.0	18.5	110	104	1,121	509
Nolan	35.0	44.6	9.3	19.6	99	102	752	480
Nueces	38.1	51.3	8.7	13.8	100	104	849	483
Pecos	37.2	46.9	9.5	16.3	113	108	817	483
Potter	36.8	48.5	8.5	17.9	108	96	872	435
Presidio	37.3	45.0	14.7	21.9	99	103	689	576
Reeves	42.8	48.6	7.7	15.5	141	103	967	502
Refugio	35.0	44.5	11.2	17.2	106	101	803	525
Robertson	32.2	35.7	10.5	25.2	115	96	947	565
Runnels	33.6	39.4	9.5	25.3	102	100	943	486
San Patricio	34.6	44.3	9.2	19.1	103	103	951	495
Starr	38.7	50.5	13.5	9.5	102	104	650	567
Sutton	35.4	45.7	11.9	17.7	108	103	846	490
Tarrant	40.2	49.0	11.3	19.3	103	97	673	439

Appendix Table II. Concluded

State & county	% aged 20–49		% aged 50 & over		Sex ratio		Fertility ratio	
	Spanish surname pop.	Non-Sp. surname pop.	Spanish surname pop.	Non-Sp. surname pop.	Spanish surname pop.	Non-Sp. surname pop.	Spanish surname pop.	Non-Sp. surname pop.
Taylor	36.6	45.7	9.0	19.9	102	97	917	412
Terrell	39.7	47.9	10.8	19.0	109	105	674	506
Terry	30.7	43.4	5.2	15.7	116	103	1,335	507
Tom Green	38.8	47.4	9.7	19.3	100	100	755	464
Travis	37.6	49.3	10.2	18.9	102	100	825	403
Uvalde	27.3	41.6	7.8	24.7	105	97	859	467
Val Verde	39.0	43.4	13.0	23.1	104	96	691	464
Victoria	36.1	46.7	10.9	19.6	99	98	849	460
Ward	36.7	48.2	7.4	13.1	115	104	992	484
Webb	39.5	44.2	14.3	21.9	92	92	639	490
Wharton	33.2	40.3	10.6	20.4	109	101	857	529
Wichita	37.4	46.9	9.3	18.1	122	121	859	461
Willacy	40.2	43.8	7.6	18.0	119	101	874	538
Williamson	33.4	39.4	11.8	26.0	103	98	793	483
Wilson	34.1	35.8	12.3	26.9	104	105	798	573
Zapata	41.1	45.6	16.1	19.5	129	102	676	679
Zavala	38.3	42.9	9.9	21.9	110	108	903	504

Appendix Table III. Marital status and levels of schooling for Spanish and non-Spanish surname populations, by county in the five southwestern states, 1950*

State & county	% married				% completing schooling levels			
	Spanish		Non-Sp.		No schooling		4 yrs. high school	
	Males	Females	Males	Females	Spanish	Non-Sp.	Spanish	Non-Sp.
Arizona	59.0	59.1	68.9	69.6	13.5	4.2	6.7	22.7
Apache	55.3	62.5	60.8	63.5	15.3	49.4	5.1	8.6
Cochise	60.4	54.9	70.4	68.1	10.4	1.1	5.6	24.2
Coconino	61.6	63.0	67.4	71.2	21.4	16.3	7.2	18.1
Gila	61.7	59.2	70.9	71.8	9.0	2.4	8.8	19.2
Graham	55.5	60.1	67.6	70.7	16.5	2.7	4.9	16.0
Greenlee	65.4	65.3	72.5	78.6	11.4	2.0	13.9	23.4
Maricopa	58.5	59.6	70.2	69.5	15.3	1.4	5.3	24.2
Navajo	65.0	63.3	66.7	69.8	13.3	22.8	8.1	16.2
Pima	59.0	57.8	67.5	67.3	11.0	2.6	7.4	25.8
Pinal	58.3	63.3	66.1	74.6	12.7	4.0	6.6	15.0
Santa Cruz	58.9	49.1	68.1	66.2	11.7	1.2	8.2	25.2
Yavapai	58.6	61.0	66.3	70.5	16.3	1.0	9.4	21.1
Yuma	54.6	60.4	72.6	76.8	17.8	2.2	3.0	22.7
California	59.4	63.1	68.9	67.2	10.4	1.3	12.8	27.6
Alameda	66.4	67.8	68.9	65.4	7.0	1.3	20.1	28.7
Butte	63.3	69.1	69.2	72.7	10.5	1.1	16.7	21.6
Colusa	48.6	66.4	64.0	70.8	16.7	1.8	9.8	22.9
Contra Costa	61.9	71.5	68.8	77.3	8.0	1.2	18.0	28.5
Fresno	58.1	63.4	70.0	70.7	17.2	2.2	5.6	22.3
Imperial	53.2	60.6	68.4	77.2	18.8	2.6	2.9	20.7
Kern	59.4	65.6	70.7	74.9	15.6	1.2	7.2	20.6
Kings	58.3	63.2	70.0	72.3	22.2	2.8	5.7	18.7
Los Angeles	61.7	60.9	71.3	65.0	8.0	1.0	14.6	29.8
Madera	54.6	58.8	68.2	73.2	18.2	1.8	4.5	18.3
Marin	41.5	64.7	65.8	69.9	5.8	.8	14.0	29.9
Merced	58.7	67.6	66.3	74.7	17.8	2.8	7.6	21.5
Monterey	48.2	66.5	61.5	71.5	15.7	1.7	7.1	23.7
Napa	59.6	67.7	60.0	67.1	6.3	1.4	16.5	24.5
Orange	57.9	62.2	73.5	69.6	13.1	.5	7.3	28.5
Placer	50.4	59.9	63.4	68.7	20.1	3.3	5.3	22.0
Riverside	57.4	63.2	71.4	70.7	15.2	.9	6.6	25.9
Sacramento	57.3	67.7	68.3	70.3	9.9	1.6	12.1	26.9

*U. S. Bureau of the Census, *U. S. Census of Population, 1950*, Vol. IV, *Special Reports, Part III, Chapter C: Persons of Spanish Surname*, Table 9 (Washington: Government Printing Office, 1953).

Appendix Table III. Continued

State & county	% married				% completing schooling levels			
	Spanish		Non-Sp.		No schooling		4 yrs. high school	
	Males	Females	Males	Females	Spanish	Non-Sp.	Spanish	Non-Sp.
San Benito	51.3	64.3	66.1	68.9	15.9	2.4	6.5	17.3
San Bernardino	59.4	61.6	71.4	71.0	14.0	1.0	7.9	26.1
San Diego	58.4	62.8	65.0	70.2	8.4	.6	15.3	30.0
San Francisco	61.5	59.6	61.2	59.1	3.4	1.7	23.0	28.0
San Joaquin	57.1	69.6	64.8	70.6	13.6	3.3	10.8	20.6
San Luis Obispo	55.3	65.4	65.3	72.0	12.2	1.2	14.1	22.3
San Mateo	68.7	74.2	74.7	73.8	4.9	.7	25.0	31.3
Santa Barbara	56.4	63.9	68.7	63.0	12.5	1.0	11.1	27.3
Santa Clara	63.3	65.8	67.3	65.0	9.6	2.3	12.4	24.9
Santa Cruz	58.3	65.4	71.3	67.5	6.6	1.8	10.6	24.3
Solano	50.4	73.6	65.4	76.0	13.0	1.3	16.6	28.7
Sonoma	46.2	49.1	67.2	67.9	18.1	2.8	13.9	24.6
Stanislaus	61.4	69.0	69.5	70.9	10.9	2.0	9.2	18.8
Tulare	58.8	65.3	70.7	73.3	18.3	1.8	5.8	17.6
Ventura	54.8	60.6	69.1	70.3	16.3	.5	5.5	24.3
Yolo	45.6	71.1	63.9	72.6	13.7	1.8	6.9	21.7
Colorado	61.0	63.9	68.1	67.3	9.5	2.0	6.3	18.3
Adams	63.3	70.3	67.0	75.9	7.3	.8	4.0	24.8
Alamosa	61.0	60.3	68.5	71.8	11.1	.7	6.5	26.5
Arapaho	72.2	66.2	77.0	75.1	2.4	.5	13.3	27.7
Archuleta	60.0	61.0	69.0	77.9	13.0	.6	2.6	21.9
Bent	53.7	68.3	59.1	71.2	14.5	1.0	2.7	16.2
Boulder	56.1	64.7	59.7	61.0	7.9	.7	5.0	20.8
Conejos	58.6	59.6	66.6	69.1	8.1	1.7	6.2	24.1
Costilla	60.2	62.0	66.7	67.3	7.0	4.1	6.2	21.3
Denver	63.7	65.2	68.6	62.4	5.9	.9	10.6	27.4
El Paso	61.7	64.7	65.0	63.0	7.8	.6	15.6	27.2
Fremont	56.7	63.9	68.0	67.2	13.0	1.5	3.0	19.6
Huerfano	61.5	63.7	64.7	65.9	11.0	6.1	3.9	16.2
La Plata	60.9	59.4	68.2	69.9	12.9	.7	5.1	23.0
Larimer	55.3	59.3	67.1	69.2	16.2	.6	2.3	21.2
Las Animas	61.6	61.8	64.4	65.7	10.1	4.7	8.0	18.2
Mesa	61.3	65.0	70.9	70.6	9.6	.9	7.7	21.5
Montrose	55.7	60.5	70.1	72.0	17.6	1.7	7.1	20.0
Morgan	55.8	57.6	68.7	71.9	30.9	1.1	5.4	20.6
Otero	59.3	63.1	72.6	69.0	14.3	1.0	4.1	24.1
Prowers	58.9	64.5	68.6	72.3	19.4	1.5	—	19.7
Pueblo	64.5	65.6	67.6	67.3	11.0	2.4	6.9	23.2

Appendix Table III. Continued

State & county	% married				% completing schooling levels			
	Spanish		Non-Sp.		No schooling		4 yrs. high school	
	Males	Females	Males	Females	Spanish	Non-Sp.	Spanish	Non-Sp.
Rio Grande	64.2	65.7	70.8	72.3	9.6	.5	4.8	28.5
Saguache	60.0	65.6	66.4	72.0	12.8	1.4	.9	27.4
Weld	55.2	62.1	68.9	69.6	16.3	1.2	2.0	20.8
New Mexico	60.5	61.6	68.8	72.0	12.5	3.2	7.5	22.7
Bernalillo	65.8	63.6	70.2	72.0	8.1	.9	10.5	28.6
Catron	54.3	60.2	65.5	75.7	11.5	.8	2.9	14.2
Chaves	62.0	66.6	66.3	74.9	12.6	1.0	7.4	25.1
Colfax	60.9	64.3	67.0	68.7	11.1	2.2	9.4	22.1
Curry	68.2	70.3	75.1	73.9	5.2	.9	12.0	21.1
DeBaca	58.3	67.4	70.8	72.1	21.2	1.1	4.7	18.0
Dona Ana	61.5	63.1	62.1	72.7	18.8	1.2	4.2	18.9
Eddy	59.5	64.2	75.1	76.5	35.0	1.5	1.8	21.5
Grant	60.6	61.4	71.2	72.0	11.0	.7	4.1	22.4
Guadalupe	56.6	59.0	66.1	72.1	8.5	.5	5.1	23.0
Harding	47.5	56.2	63.6	75.0	17.4	1.8	6.4	20.7
Hidalgo	60.2	56.9	70.9	73.4	18.0	3.2	6.8	20.3
Lincoln	58.0	64.7	64.2	73.3	10.0	1.0	6.2	17.5
Luna	57.5	62.0	71.4	71.3	17.6	1.9	4.4	21.8
McKinley	63.5	62.1	60.5	64.0	11.3	19.6	12.3	13.7
Mora	54.4	59.2	58.6	65.8	9.5	5.6	2.6	15.2
Otero	63.7	64.5	63.5	76.5	19.5	1.4	7.8	20.5
Quay	65.2	66.5	72.1	74.4	12.0	.3	3.7	25.8
Rio Arriba	58.5	60.0	70.7	70.4	15.3	6.5	6.0	16.6
Sandoval	58.4	59.6	53.7	59.8	12.8	21.8	4.3	8.5
San Juan	56.8	62.2	64.8	64.8	4.3	24.0	7.2	15.8
San Miguel	55.2	58.3	59.8	63.5	12.2	3.4	4.6	21.8
Santa Fe	60.4	59.1	64.7	61.4	7.4	1.2	13.5	25.9
Sierra	58.2	56.9	69.5	70.7	21.5	1.2	8.5	19.4
Socorro	59.1	59.6	62.1	72.7	13.0	4.1	6.4	14.6
Taos	58.6	59.2	64.6	65.9	12.3	9.9	6.7	21.5
Torrance	58.2	61.3	68.9	74.1	17.9	.7	5.0	17.5
Union	60.5	64.1	68.1	71.5	14.4	1.6	9.3	20.7
Valencia	59.6	62.1	65.0	67.3	10.7	10.8	7.5	17.4
Texas	60.5	60.5	70.5	69.6	27.0	1.8	4.0	17.0
Atascosa	57.8	63.6	69.2	71.9	35.2	2.2	.8	7.7
Bastrop	62.3	62.6	67.4	66.6	28.9	2.9	.7	8.6
Bee	63.7	63.9	72.1	68.1	39.8	2.1	.6	17.9

Appendix Table III. Continued

State & county	% married				% completing schooling levels			
	Spanish		Non-Sp.		No schooling		4 yrs. high school	
	Males	Females	Males	Females	Spanish	Non-Sp.	Spanish	Non-Sp.
Bell	53.1	64.7	57.4	72.0	32.8	1.4	3.4	14.5
Bexar	62.6	59.2	63.3	65.6	20.5	1.3	6.1	23.7
Brazoria	62.4	64.5	72.6	74.7	32.9	1.6	.7	11.3
Brazos	54.8	66.4	55.3	71.5	27.8	2.9	1.5	13.2
Brewster	52.6	57.0	59.3	66.6	28.5	1.1	1.6	16.6
Brooks	59.6	59.5	75.2	78.1	27.7	1.1	2.1	12.1
Burleson	55.3	61.9	64.7	63.4	52.4	3.3	—	4.3
Caldwell	58.7	59.6	70.2	65.7	40.3	2.6	—	11.5
Calhoun	68.0	62.6	70.6	72.3	33.8	3.4	2.6	14.4
Cameron	60.7	61.0	73.9	71.8	32.3	2.2	3.4	25.2
Comal	59.2	59.9	74.6	70.5	32.5	.7	2.0	12.6
Crockett	56.9	71.7	80.3	81.2	23.2	.3	1.8	25.5
Dallas	62.8	63.7	75.2	67.9	23.8	1.2	6.3	25.3
Dawson	63.8	68.5	73.5	74.1	40.1	.9	—	13.4
De Witt	61.0	59.1	69.3	65.0	35.6	3.2	.9	4.9
Dimmit	57.4	63.6	72.8	72.4	31.1	1.7	.5	11.6
Duval	57.4	58.7	73.7	76.5	23.0	3.4	5.1	17.2
Ector	69.2	74.6	77.8	80.6	28.2	.6	—	16.8
Edwards	61.2	69.5	73.4	75.1	31.7	.5	1.2	12.1
Ellis	54.7	57.5	70.0	66.1	36.3	2.3	3.3	11.5
El Paso	59.6	55.1	61.9	72.1	15.1	1.0	7.4	28.2
Falls	56.8	58.3	67.3	64.6	51.7	3.8	—	6.1
Fort Bend	51.9	61.9	67.4	71.3	32.5	5.0	.6	5.9
Frio	59.7	60.6	69.0	69.2	52.8	5.3	.6	13.8
Galveston	62.0	63.2	70.8	69.2	17.6	2.0	6.8	19.2
Goliad	55.7	61.1	70.5	67.0	45.6	2.4	.6	11.1
Gonzales	57.5	59.8	67.3	65.6	39.1	3.5	.6	6.1
Guadalupe	57.6	57.1	70.5	69.6	39.8	2.4	1.1	9.9
Hale	63.9	74.3	73.3	74.8	33.7	1.2	1.2	20.9
Harris	63.9	64.1	73.9	70.6	17.8	1.5	6.4	18.9
Hays	57.6	57.7	61.2	57.4	44.9	2.5	1.0	8.6
Hidalgo	59.4	62.1	74.1	71.5	33.5	3.0	2.2	23.5
Hockley	70.3	71.9	74.6	79.8	37.5	1.2	—	20.1
Howard	59.0	60.9	73.7	73.9	33.6	1.7	2.4	17.0
Hudspeth	61.5	71.3	73.4	79.5	35.4	3.4	1.4	17.7
Jackson	60.7	61.9	69.5	70.0	27.1	1.2	.8	7.1
Jeff Davis	55.7	68.3	73.6	72.8	23.1	.9	—	15.8
Jefferson	64.5	65.3	73.4	70.9	12.4	4.4	11.1	19.5
Jim Hogg	55.4	53.3	71.3	72.9	19.5	4.4	4.1	14.5

Appendix Table III. Continued

State & county	% married				% completing schooling levels			
	Spanish		Non-Sp.		No schooling		4 yrs. high school	
	Males	Females	Males	Females	Spanish	Non-Sp.	Spanish	Non-Sp.
Jim Wells	62.0	63.0	75.4	76.5	28.4	1.9	2.1	13.9
Jones	65.6	65.9	73.5	73.1	33.3	1.4	2.3	12.2
Karnes	58.0	60.9	67.3	68.8	43.1	3.5	.4	8.7
Kerr	63.1	68.4	71.4	67.8	23.9	1.1	3.4	15.3
Kinney	53.1	61.7	68.7	68.0	31.5	3.5	1.5	9.1
Kleberg	62.7	61.7	64.9	69.7	18.8	1.0	2.3	19.4
Lamb	66.0	72.4	71.7	76.6	33.9	1.2	4.8	14.3
La Salle	59.2	61.5	68.8	71.0	37.8	1.4	1.3	17.0
Live Oak	58.4	63.0	70.1	72.1	42.9	2.1	.4	6.5
Lubbock	62.5	67.7	69.3	73.3	40.8	.9	.7	21.7
Lynn	64.1	69.1	72.5	77.1	34.2	1.8	1.3	18.2
McCulloch	56.6	60.3	73.0	70.5	34.7	1.9	4.0	11.5
McLennan	53.7	60.9	68.0	65.8	32.6	1.7	1.6	14.5
Martin	60.7	67.1	70.7	74.1	40.3	1.6	1.6	9.3
Matagorda	62.4	64.3	69.4	69.9	31.3	2.7	3.4	11.7
Maverick	58.8	55.0	71.3	69.7	21.5	2.9	1.9	12.6
Medina	61.5	62.9	69.6	70.7	44.1	4.5	.7	12.5
Midland	64.4	69.6	77.6	76.1	41.6	1.1	—	21.5
Milam	57.2	54.9	65.8	65.8	40.7	3.1	—	5.8
Mitchell	62.8	66.0	73.4	75.6	40.7	1.4	—	9.7
Nolan	57.0	60.5	74.5	74.6	32.9	.8	1.2	15.3
Nueces	64.9	64.4	71.9	74.3	27.7	1.1	3.2	22.4
Pecos	57.5	63.5	74.1	77.6	42.6	1.0	.8	18.7
Potter	58.4	65.8	74.7	70.7	20.2	.6	6.2	21.7
Presidio	56.4	53.6	70.9	71.1	35.7	5.0	3.8	19.1
Reeves	59.7	69.4	74.0	76.0	25.0	2.0	1.6	24.2
Refugio	61.3	61.1	71.8	71.8	43.4	3.8	1.8	13.9
Robertson	57.5	64.2	66.7	64.1	57.5	5.3	4.1	5.4
Runnels	59.3	63.8	72.2	71.0	34.9	1.3	1.2	11.1
San Patricio	62.3	64.4	72.3	73.9	44.4	2.6	.5	16.7
Starr	55.3	54.4	74.0	77.9	20.5	—	3.7	22.5
Sutton	64.5	67.2	72.8	75.3	30.6	.9	2.4	18.1
Tarrant	62.2	62.0	73.9	70.2	20.2	.9	7.8	23.4
Taylor	57.1	60.7	69.5	65.6	42.4	1.9	2.3	17.1
Terrell	54.8	60.0	73.4	79.3	36.2	.6	1.4	25.1
Terry	65.7	71.5	73.0	76.1	44.4	.9	3.2	15.4
Tom Green	62.2	65.2	70.4	70.6	30.0	1.1	2.3	20.8
Travis	58.3	60.0	60.8	61.0	28.9	2.5	3.1	17.0
Uvalde	62.5	63.4	70.9	68.9	28.7	1.5	1.5	18.7

Appendix Table III. Concluded

State & county	% married				% completing schooling levels			
	Spanish		Non-Sp.		No schooling		4 yrs. high school	
	Males	Females	Males	Females	Spanish	Non-Sp.	Spanish	Non-Sp.
Val Verde	60.7	56.4	73.6	69.8	24.9	2.0	2.4	18.2
Victoria	60.6	61.4	72.6	68.4	27.6	2.1	3.2	14.7
Ward	58.6	65.4	75.9	78.0	39.6	.9	—	22.0
Webb	59.0	52.0	70.5	63.2	18.3	3.2	6.1	22.2
Wharton	59.0	64.4	68.2	68.7	39.9	4.5	1.6	6.2
Wichita	56.0	69.0	56.4	71.8	19.2	1.2	4.6	20.3
Willacy	58.9	66.5	74.5	74.9	45.3	2.7	1.5	22.1
Williamson	54.0	56.2	68.1	66.7	37.3	2.0	.7	10.8
Wilson	56.5	60.8	66.1	69.7	29.7	3.0	1.8	6.9
Zapata	49.8	57.5	78.9	81.6	23.3	—	3.0	25.0
Zavala	60.2	61.5	71.1	72.7	38.7	2.0	1.4	19.6

Edited by WALTER C. McKAIN, JR.

Book Reviews

Anderson, Nels. *The Urban Community: A World Perspective.* New York: Henry Holt and Co., 1959. xii, 500 pp. $5.50.

This book will be particularly useful as a textbook for undergraduate courses in the community and urban sociology. Through it the author encourages social scientists, especially sociologists, toward "wider approaches" in community research in view of the global trends of urbanism in recent years. Anderson is Director of Research of the European Institute for Social Research with headquarters in Cologne, Germany.

The author calls attention to the differences between urbanism in the United States and that in Old World countries. He suggests that the former is better understood when the role of the frontier in American life is taken into account, as well as the trait of individualism and population mobility. New and stimulating for an "urban text" is the emphasis placed on work in its sociological aspects. In fact work, leisure, government, and security are seen as crucial elements in a study of urban sociology. The more than five hundred names of authors in the index is indicative of the vast scope of materials used by Anderson in preparation of this volume.

The author's attempt to present urbanism in a world perspective is commendable. One difficulty associated with this approach is the tendency for each observer to be somewhat culturally bound. A "Western Culture" perspective is more likely to be achieved than a world perspective by a person oriented to United States and European societies. In describing American "urban life," the author makes frequent comparisons with "rural life" in India, Pakistan, and Rhodesia. One wonders if the author is fully aware of the limitations involved in such cross-cultural comparisons.

There are some fresh, new approaches for a textbook in urban sociology, although most of the concepts in the frame of reference are familiar. These include the village confronted with urbanism (Chapter 4), work and its place under urbanism (Chapter 13), some economic aspects of urban living (Chapter 15), and urbanism and resources control (Chapter 18). Much of the volume will be of interest to rural sociologists, especially the treatment of urbanization of the small community and a cross-cultural perspective on the community. The first four chapters of the book would make excellent collateral reading for courses in introductory rural sociology.

HAROLD E. SMITH

Department of Social Sciences
Northern Illinois University

Batten, T. R. *School And Community In The Tropics.* New York: Oxford University Press, 1959. vi, 177 pp. $2.00.

This book is one of several publications by Oxford University Press on community development in underdeveloped areas. The author discusses the role of the teacher and school in the rural tropical community, assesses a variety of programs relating the school to community needs, and examines some problems in implementing new programs in and through village primary schools. He contends that new forms of education are required to teach people how to build a satisfying community life while in the process of adjusting to change. "Community schools" are proposed as the way "to make education more useful to the majority of children by relating it more closely and practically to local community life" (page 3). Community schools would also serve as vehicles for adult education and community development programs.

The author accepts a number of unsubstantiated assumptions which might serve as foci for further study by comparative sociologists. (1) School districts with the best records for education also have high crime rates (page 11). (2) The size of the "community," that is, the group involved in a project, will vary with the kind of project, for example, health, farming, road building (page 16). (3) It is the child of low status, who has no prospect of achievement in the indigenous society, who is most likely attracted by the school and by the prospect of teaching (page 28). (4) "The more the way of life of the external society is desired, and the more able to teach that life the teacher is thought to be, the higher will be the status accorded him and the greater his influence among the people." (page 26).

THOMAS LUCIEN BLAIR

State University of New York
College of Education, New Paltz

Fujii, Yukio, and T. Lynn Smith. *The Acculturation of the Japanese Immigrants in Brazil.* Gainesville, Fla.: University of Florida Press, Latin-American Monographs No. 8, 1959. 56 pp. Gratis.

This monograph constitutes a significant contribution to the literature on the acculturation of the Japanese in Brazil. It is probably the most complete treatment of this topic to be printed in English to date. It makes excellent use of Brazilian and Japanese sources as well as American sources, particularly the articles by Emilio Willems and the unpublished Ph.D. dissertation by Marion T. Loftin, "The Japanese in Brazil: A Study in Immigration and Acculturation" (Vanderbilt University, 1952).

The first chapters contain an introduction, a historical treatment of Japanese immigration to Brazil, and demographic analyses of Japanese immigrants and of Japanese and persons of Japanese descent living in Brazil at the present time. The concluding chapters relate the previous material to *(a)* adjustment to the physical and agricultural environments, *(b)* changes in community structure, *(c)* changes in the basic social institutions, and *(d)* changes in the ethos.

The authors emphasize ways in which Japanese-Brazilian society has become differentiated from traditional Japanese rural society. These changes may be summarized as follows: *(a)* changes in agricultural practices, dress, diet, and

housing produced mainly by the geographic environment; *(b)* a substantial increase in average size of holdings as compared with agricultural properties in Japan and settlement in line villages rather than nucleated villages; *(c)* changes in community structure brought about by the destruction of the traditional relationship of tenant to landowner and by the creation of new bases for community solidarity; *(d)* the weakening of the close tie between the main family and the branch family by the disappearance of primogeniture, the independence of second and third sons, and the consequent lessening of the influence of the patriarchal family, accompanied by the increasing importance of the conjugal family; *(e)* the smooth and relatively rapid conversion of second generation Japanese to Catholicism, facilitated by flexible and indifferent attitudes toward religion; and *(f)* a decline in ethnocentrism, resulting from Japan's defeat in World War II.

J. V. D. SAUNDERS

Dept. of Rural Sociology
Louisiana State University

International Labour Office. *The Cost of Medical Care.* Geneva, Switzerland: International Labour Office. Studies and Reports, New Series, No. 51, 1959. xiii, 216 pp. $1.50.

This report is based on a study of costs of medical and health care for 1950–1955 in several west European and some Latin-American nations together with Canada (Saskatchewan) and the United States. Data are given by individual countries as to total expenditures for health care; expenditures by types of health resources; trends in expenditures, 1950–1955; incomes of health care personnel; and trends of health care expenditures in relation to income. The provisional nature of findings, due to the problems of comparability of data available, is recognized by the authors.

The report will be a very useful source book for teaching and research use by social scientists.

DONALD G. HAY

Agricultural Marketing Service
U. S. Department of Agriculture

Lewis, Oscar. *Five Families: The Anthropology of Poverty; a Revealing Portrait of Lives, Customs, and Emotions in Mexico.* With a foreword by Oliver La Farge. New York: Basic Books, Inc., 1959. xiii, 351 pp. $5.50.

Here are recorded the "simple annals of the poor." Four of the five families are preoccupied most of the time with scrounging for the *tortillas* and beans necessary to keep body and soul together. The fifth family is newly rich, but suffering serious breakdown in family order and relationships.

It is an unusual book from the standpoint of method. It combines the approach of the novelist—each chapter is the complete day's activity of a family—and in a sense that of the dramatist, with the participant observation of the trained anthropologist. In comparing his method with that of the novelist, Lewis says his can be called "ethnographic realism" instead of "literary realism."

The day described for each family, the author assures us, is a "real," not a "composite," day. However, the days described were prepared for by the investigator with elaborate preliminary studies including interviews with and autobiographies of individual members of the family. The past history and past experiences of family members are indispensable background for giving meaning to the observed behavior of the family members and their relationships to each other.

By the use of these "flash backs" the observer is able to construct a meaningful and very interesting pattern for each family so that all its members stand out as individuals as do the characters in a successful novel. It recounts verbally the equivalent of a motion picture of the family's day of activity.

Case studies, such as these are, always raise the question as to possible representativeness. One is not sure how far he can generalize from them. Lewis is conscious of this problem, of course, and attempts to meet objections that might arise through providing in the first chapter a great deal of information from the Mexican census regarding housing, income, and other aspects of life. A survey was also made of seventy-one households constituting a neighborhood in which one of the families lived. In short, the fact that all four of the poor families live in one-room quarters identifies them with a large segment of the Mexican population on this item. Similarly, their low income places them with a large category. This reviewer would not cavil over this aspect of the problem. He would rather express admiration and satisfaction that the author could and would undertake the immense task of doing what he did. The depth and scope of these studies make our usual statistical analyses—worthy and important as they are—seem superficial by comparison.

LOWRY NELSON

Professor of Sociology Emeritus
University of Minnesota

BOOKS RECEIVED

Bierstedt, Robert (ed.). *The Making of Society.* New York: Random House, Inc., 1959. xx, 557 pp. $1.65.

Dressel, Paul L., Lewis B. Mayhew, and Earl J. McGrath. *The Liberal Arts As Viewed By Faculty Members In Professional Schools.* New York: Bureau of Publications, Teachers College, Columbia University, 1959. vi, 68 pp. $1.50.

Ehrmann, Winston. *Premarital Dating Behavior.* New York: Henry Holt and Co., 1959. xvii, 316 pp. $6.00.

Galanger, Eugene (ed.). *Automatic Teaching: The State of the Art.* New York: John Wiley & Sons, Inc., 1959. vii, 197 pp. $3.25.

Hess, Robert D. and Gerald Handel. *Family Worlds.* Chicago, Ill.: The University of Chicago Press, 1959. xiii, 305 pp. $5.00.

Hoselitz, Bert F. (ed.). *A Reader's Guide to the Social Sciences.* Glencoe, Ill.: The Free Press, 1959. 256 pp. $2.95 (paper), $6.00 (cloth).

International Conference, Report of. *Human Relations.* Utrecht, Netherlands: Nationale Stichting, 1956. 375 pp. $3.50.

Jaffe, A. J. *People, Jobs and Economic Development.* Glencoe, Ill.: The Free Press, 1959. xix, 381 pp. $6.00.

McGrath, Earl J. *Liberal Education in the Professions.* New York: Bureau of Publications, Teachers College, Columbia University, 1959. vi, 63 pp. $1.50.

Nett, Roger and Stanley A. Hetzler. *An Introduction to Electronic Data Processing.* Glencoe, Ill.: The Free Press, 1959. 287 pp. $6.75.

Senior, Clarence. *Land Reform and Democracy.* Gainesville, Florida: University of Florida Press, 1958. xiii, 269 pp. $6.75.

Thomas, Robert B. *The Old Farmer's Almanac 1960.* Dublin, New Hampshire: Yankee, Inc., 1959. 96 pp. $.35.

U.S. Department of Commerce. *Statistical Abstract of the United States, 1959.* Washington, D.C.: U.S. Government Printing Office, 1959. xii, 1042 pp. $3.50.

Edited by MARION T. LOFTIN

News Notes

COLLEGES AND UNIVERSITIES

Boston University

Irwin T. Sanders has been appointed professor and chairman of the Department of Sociology and Anthropology in the Liberal Arts and Graduate School. He will begin his new assignment on January 1, 1960, following a trip to the Balkan countries in connection with research and writing in which he is currently engaged.

Sanders succeeds Albert Morris who is currently on leave of absence as a Fulbright Fellow in New Zealand. Morris has requested to be relieved of his administrative duties in order to return to full-time teaching and his work in criminology, a field in which he is a noted authority.

Campbellsville College, Campbellsville, Kentucky

Fred R. Yoder, formerly of Washington State University, has been appointed chairman of the Division of Social Sciences of Campbellsville College. He will teach a course in agricultural economics and make a study of rural churches of central Kentucky.

Wilma P. Yoder, M.A., Washington State University, has been appointed instructor in sociology and will teach the course in rural sociology.

University of Connecticut

A Ph.D. program in sociology has been established in the Department of Sociology and Anthropology. This includes three grantees of the National Defense Graduate Fellowships, beginning in the current academic year.

Harris Chaiklin, presently a Ph.D. candidate in the field of medical sociology, Yale University, has joined the teaching staff. Claus B. Bahnson has joined the research staff to work on a further grant to Walter I. Wardwell from the Institute of Mental Health to study the social and psychological factors in the etiology of coronary heart disease. Arthur J. Vidich is conducting a study on the social and psychological consequences of change in rural Puerto Rico, sponsored and supported in part by the National Institute of Health. Bernard C. Rosen is on sabbatic leave for the first semester, 1959–1960. Donald P. Kent has been designated by Governor Ribicoff to head up Connecticut's preparation for the White House Conference on Aging to be held in January, 1961.

In the Department of Rural Sociology, Philip J. Olson of Purdue University and Donald G. Hay from the Department of Agriculture have joined the research staff. Robert J. Burnight is on leave during the fall semester to study population migration in Mexico on a Guggenheim Fellowship.

Cornell University

Robert A. Polson is on sabbatic leave during 1959–1960. During his absence, Lowry Nelson is visiting professor in the fall term and James W. Green, on assignment from the International Co-operation Administration, is visiting professor in the spring term. Polson participated in the Conference on Social Development in England, September 7–12, 1959. On his sabbatic he is observing community development in Africa and Asia and serving as consultant for ICA in several countries.

Robert A. Danley has been appointed assistant professor to work on the project for the comparative study of utilization of health resources in rural and urban areas, part of which is supported by a United States Public Heatlh Service Grant.

Olaf F. Larson attended the fourth World Congress of Sociology in Italy in September, 1959, receiving a travel grant from the Social Science Research Council for the purpose. He also visited rural sociological research centers in Europe.

A grant has been received from the Sears-Roebuck Foundation for a study in New York of the community service program sponsored jointly by the Grange and the Foundation. A grant has been received from the Co-operative Grange League Federation in support of farm practice adoption and communication research.

The national workshop for extension specialists in rural sociology, community development, and extension studies—sponsored by the Rural Sociological Society and the Land-Grant College Association's Extension Committee on Organization and Policy—was held at Cornell August 28–September 2, 1959. Attendance totaled 63 persons of whom 38 work directly as extension sociologists. The proceedings of the workshop are being prepared under the direction of the program chairman, Gordon J. Cummings.

University of Illinois, Urbana

Louis Schneider, formerly of Purdue University, has been appointed professor of sociology and head of the department. He will begin his duties on March 15, 1960. At present, he is visiting professor of sociology at Dartmouth College.

On July 1, 1959, the anthropology division of the department was separated and established as an independent Department of Anthropology. Julian Steward is serving as acting head of the new department.

J. E. Hulett, Jr., who has served as chairman of the department since 1953, has been granted a sabbatical leave of absence for the second semester of the current academic year. He will spend his period of leave at Princeton University.

J. W. Albig, who has been on the staff of the department for the past thirty years and served as chairman from 1940 to 1953, has announced his intention to retire at the end of the current academic year.

Two members of the department retired on August 31, 1959: Associate Professors Ernest H. Shideler and Benjamin F. Timmons.

A. W. Gouldner resigned his position in the department and has become chairman of the Department of Sociology and Anthropology at Washington University.

Joseph R. Gusfield has been promoted to the rank of associate professor.

Bennett M. Berger, formerly of the University of California at Berkeley, has been appointed assistant professor in the department and research assistant professor in the Institute of Communications Research.

Norman W. Painter, who was for the past seven years professor of sociology at the Central University of Venezuela in Caracas, has been appointed lecturer in sociology.

University of Kentucky

Howard W. Beers has resigned as head of the Departments of Sociology and Rural Sociology and A. Lee Coleman has been appointed to succeed him. Beers, who has been in India since June, 1958, on a Ford Foundation assignment, has accepted appointment as a community development consultant on the staff of the Council on Economic and Cultural Affairs. He will have headquarters in Bogar, Indonesia. He remains on leave from the University as Distinguished Professor of Rural Sociology. Coleman returned on July 1 from sabbatic leave spent at the University of North Carolina, Chapel Hill.

Willis A. Sutton, Jr., associate professor of sociology and executive director of the Bureau of Community Service, left in August for a year in India on a Ford Foundation appointment. He will teach in the Central Institute for Study and Research in Community Development, Mussourie.

Jiri Kolaja, assistant professor of sociology, spent the summer in Yugoslavia, doing research in industrial sociology under a Social Science Research Council grant. He interviewed workers in two factories concerning worker participation in management.

The tenth annual Seminar in Intergroup Relations was held during the summer session, in co-operation with the National Conference of Christians and Jews. Willis A. Sutton, Jr., was director and Edsel Godby associate director.

Robert A. Danley, assistant professor of rural sociology, has resigned to accept a position at Cornell University.

The annual Community School-for-a-Day, a training institute for community leaders, was held in October, under the sponsorship of the Bureau of Community Service. Irwin T. Sanders of Harvard and Boston Universities was the featured speaker. Sanders, formerly Distinguished Professor of Sociology at the University, was the founder of the Bureau of Community Service and the School-for-a-Day. This year's theme of the school was "Area Program Development for Better Communities."

Graduate assistants in the Departments of Sociology and Rural Sociology this year include Charles E. Garth, Gordon DeJong, M. Jay Crowe, Donna Carroll, Robert Adler, Ralph Lamar, K. M. George, Phillip Smith, and Bruce M. John. Joy M. Query has a Southern Fellowship Fund grant for the first semester and will serve as an instructor during the second semester. John J. Crowden holds a university fellowship.

Harry Best, emeritus professor of sociology, is in Europe. He is doing research at the British Museum and various university libraries in Great Britain, after which he will travel on the Continent and in Egypt.

During the summer of 1959, Marion Pearsall, associate professor of sociology and rural sociology, did field research in the mountains of eastern Kentucky on a health study. John Flint, assistant professor of sociology, was engaged in field research on religious attitudes and values of mountain people, as a

subproject of the Southern Appalachians Studies. John C. Ball, assistant professor of sociology, continued work on a delinquency manuscript. James S. Brown, associate professor of rural sociology, directed the migration project for Southern Appalachians Studies. Thomas R. Ford, associate professor of sociology and rural sociology, continued as director of general research for Southern Appalachians Studies.

The Ohio State University

Professor Emeritus J. P. Schmidt served as the co-ordinator for the recent workshop on urban adjustment of southern Applachian migrants at Berea College. This workshop was sponsored by the Ford Foundation for representatives from urban areas in Illinois, Ohio, and Michigan.

Merton D. Oyler attended the Danforth Seminar on "Freedom and Determinism in Sociological Theory" at the University of North Carolina. He is collaborating with Howard E. Bracey, visiting fellow in rural sociology, on a joint study of suburban family life in Columbus, Ohio, and Bristol, England.

Wade H. Andrews, associate professor of rural sociology, has been investigating the impact of new highways on rural life in Idaho on a six months' leave of absence from The Ohio State University. He has been associated with the Highway Economics Department at the University of Idaho.

Saad Z. Nagi, assistant professor of rural sociology, accepted a position on October 1 as assistant professor of sociology and director of social research at the Ohio Rehabilitation Center at The Ohio State University.

New research assistants in rural sociology are J. Ross Eshelman from Manchester College, Frank Leuthold from The Ohio State University, and Dave Francis from Pennsylvania State University.

Everett M. Rogers, assistant professor of rural sociology, has returned from Michigan State University where he served as visiting assistant professor of sociology during the summer session. His introductory rural sociology textbook, *Social Change in Rural Sociology*, is scheduled for publication in early 1960.

John B. Mitchell, associate professor of rural sociology, attended the national workshop of extension specialists at Cornell University.

Oregon State College

Robert H. Dann, professor emeritus, died August 18, 1959. He had been on the staff from 1927 to 1956. During the past two years he was visiting professor at the College of the Pacific, Stockton, California.

Arthur E. Gravatt, on leave from Willamette University, has joined the staff as temporary part-time instructor. Also appointed as part-time instructor was Bernard L. McCarthy, formerly on the staff of Wisconsin State College, River Falls.

ANNOUNCEMENTS

The appointment of Dr. William C. Lehmann as Mary Helen Marks Visiting Professor at Chatham College for 1959–1960 has been announced by Dr. Paul R. Anderson, president of the college. Lehmann, who will serve as professor of sociology and chairman of the department, is best known for his work in the fields of sociological history and urban population studies. He will act in place of Mabel Elliott who is on sabbatical leave this year.

The professorship honors Mary Helen Marks, dean emeritus of the college, and is customarily extended to a recently retired faculty person with a distinguished record in his field. Lehmann served on the faculty of Syracuse University for twenty-seven years, from 1927 until 1954, and held each of the academic ranks from lecturer to full professor. Since leaving Syracuse he has been active as a John Hay Whitney Visiting Professor at Centre College, Kentucky, and as a Fulbright lecturer at the University of Muenster, Germany. In the year 1952 and 1953 he was acting director of the American Institute at the University of Munich for the U.S. State Department. Among other colleges at which he has served are Newcomb College at Tulane University, Lakeland College, Wisconsin, and Wells College, New York.

Dr. Lehmann is the author of a forthcoming book on John Millar, the eighteenth-century Scottish teacher and liberal. He has also written *Adam Ferguson and the Beginnings of Modern Sociology* and *Syracuse Population by Census Tracts,* published by the Syracuse Council of Social Agencies, as well as a series of other studies connected with the Syracuse Housing Authority. He has also contributed a large number of articles to leading American, British, and German Sociological journals.

He is a graduate of Lakeland College, Wisconsin, where he took the B.A. degree. His M.A. and Bachelor of Divinity are from Vanderbilt, and his Ph.D. is from Columbia University.

Wittenberg College, effective September 1, 1959, will be known as Wittenberg University.

Wittenberg College, founded in 1845, has functioned as a small university through much of its history. A theological seminary has always been a part of its structure. Graduate studies were established in 1883.

In 1954, Wittenberg's faculty began a study of the institution's existing structure in relation to its potential for service to its several constituencies: church, alumni, and community. The result was a reorganization in 1957 into five units—College of Arts and Sciences, School of Professional Studies, The ological School, School of Community Education, and Graduate Studies Program—and a conviction that the small university will have an increasingly significant role to play in American higher education.

Wittenberg's aims in studying and reorganizing its structure were five: (1) to take direct action toward revitalizing the liberal arts; (2) to clarify the relationship of existing schools and of any additional schools which might be established; (3) to provide opportunity for wider, more intensive service to its supporting synods of the United Lutheran Church in America; (4) to recognize the importance of continuing education for adults; and (5) to provide graduate work on the master's degree level.

Wittenberg has operated for two years under its new structure. The two years of experience have strengthened its conviction that the small university, with its opportunity for strengthening the liberal arts while at the same time serving students with differing motives and needs in higher education, will have unique possibilities to meet the demands of the years ahead.

The change of name from Wittenberg College to Wittenberg University on September 1, 1959, recognizes the structure under which the institution has operated since its founding and emphasizes the objectives specifically adopted two years ago.

ROBERT HORNIMAN DANN (1889–1959)

ROBERT HORNIMAN DANN, professor emeritus of sociology at Oregon State College, died of a heart attack on August 18, 1959. Born in Brighton, England, he left for Canada at the age of sixteen and in 1913 he came to the United States. He received a B.A. degree from Pacific College (now George Fox College), New Berg, Oregon, and the M.A. degree from Haverford College in 1918. Further graduate work in sociology took him to Harvard University, the University of Pennsylvania, and the University of Washington. His teaching career began at Guilford College, North Carolina where he was professor of religious education and sociology from 1920 to 1924. In 1927, after a brief period in business, he joined the staff of Oregon State College as instructor in economics and sociology, later moving up through the ranks and retiring in 1956 as professor of sociology.

Following his retirement, Professor Dann accepted a position in Honolulu as representative of the American Friends Service Committee. From 1957 to 1959 he held the position of professor of sociology at the College of the Pacific, Stockton, California, and he had only recently returned to his home in Corvallis at the time of his death.

He combined his Quaker convictions with his training in sociology to aid his students in the development of a rational approach for dealing with the problems of their communities. His sincerity as well as an unusually large capacity for friendship won for him the high esteem in which students and colleagues held him.

He was seriously concerned with the question of capital punishment, and gathered extensive data from a number of states to test his hypothesis that capital punishment was not a deterrent of crime. His account of "Capital Punishment in Oregon" was published in the *Annals* of the American Academy of Political and Social Science. From 1946 to 1952 he served on the Oregon Prison Association Board.

During the year 1946 to 1947 he was the official representative of the American Friends Service Committee to the world assembly of Quakers in Australia. Aside from his very active participation in the programs of the Friends Service Committee he was also a member of long standing of the Pacific Sociological Society, the American Sociological Society, the American Academy of Political and Social Science, and the American Association of University Professors.

Survivors include his widow, Lyra Miles Dann, a daughter, and two grandsons.

HANS H. PLAMBECK

Oregon State College

RURAL SOCIOLOGY will present, as a Supplement to the June 1960 issue, a bibliographic essay dealing with Mexico and the border area.

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   T. Lynn Smith, *The Sociology of Rural Life* (3d ed.; New York: Harper, 1953), pp. 377–379.

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